seamless

System for Environmental and Agricultural Modelling;
Linking European Science and Society

Procedure to Identify and Assess Current Activities

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General Information

Task(s) and Activity code(s): 3.3.9

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Executive summary

The SEAMLESS Integrated Framework (SEAMLESS-IF) seeks to assess current farming activities in Europe and their future development in response to changes in the farm environment, e.g., climate change or changes in the political system, with regard to economic, social, and environmental impacts.

Only some of the data needed to characterise agricultural production and management can be obtained from EU wide farm data sources, such as the Farm Accountancy Data Network (FADN), while the bio-economic farm model FSSIM, and particularly APES, the agricultural production and externalities simulator, require much more detailed economic and agronomic data than provided by the FADN.

SEAMLESS therefore decided to carry out computer-based surveys among experts with sufficient regional knowledge in agronomy, mechanics and marketing to obtain the missing information. However, as data collection and model development of FSSIM and APES were carried out simultaneously, some of the data needs that were originally agreed upon were overhauled by new developments during the execution of the project. Additionally, it was experienced that carrying out extensive surveys in a representative number of case study regions with a sufficient data quality was too resource intensive. The original 'detailed' survey carried out in five EU NUTS2 regions was therefore replaced by minimal approach to data collection, the so-called simple survey, carried out in 25 NUTS2 regions.

This deliverable deals with (i) the data requirements needed for the definition of agricultural activities in FSSIM and APES, (ii) the development of the two computer-based expert surveys and their differences, and (iii) possible methods for deriving machinery and variable cost data of current activities from the FADN.

1 Introduction

Agricultural activities within the SEAMLESS-IF are sets of crop rotations (or animals) plus management operations ('production techniques') with corresponding inputs and outputs. Current activities (CA) are regionally typical currently practiced agricultural activities reflecting what a typical farmer belonging to a certain farm type with certain resources (land, labour, capital) would typically do. Alternative activities (AA) are simulated activities that might be suitable alternatives for the future (such as technological innovations or novel cropping or husbandry practices). CAs and AAs constitute the linking element between economic decision-making in FSSIM, and the simulation of agricultural production coefficients and externalities by APES.

The only source of harmonised micro-economic farm data with EU wide coverage is the Farm Accountancy Data Network (FADN). The FADN is based on an annual survey among a sample of representative agricultural holdings in the European Union and provides a yearly overview on diverse economic and financial indicators, but provides only little information on agricultural management. A description of the FADN database and general access to some predefined averages is provided at http://ec.europa.eu/agriculture/rica/index_en.cfm.

In SEAMLESS, FADN data were used for building typologies of representative farms to be modelled in FSSIM (see Andersen et al., 2006). FADN farms are characterised by several attributes (e.g., region, economic size, and type of farming). Furthermore, additional variables can be used to group farms (see Appendix A). The economic and agronomic data requirements of APES and FSSIM go far beyond the data provided by the FADN (see Appendix B) as they include numerous, at times interrelated, factors and aspects such as land-use management elements (e.g., crop type, fertilising application, spraying application, and sowing date), site conditions (climate, soil) and market conditions (prices, subsidies, costs).

Two computer-based surveys were carried out in order to obtain the missing economic and agronomic data. The two surveys are the focus of this deliverable report. Chapter 2 describes the process of the data collection. Chapter 3 describes the two computer surveys with regard to general set up and technological background. Chapter 4 describes a possible extrapolation procedure for machinery and variable cost data from FADN data to the activities collected with the survey.

Seven appendixes complete this deliverable report.

Appendix A gives an example of FADN data for the region Flevoland, The Netherlands to demonstrate what kind of data are provided by the FADN.
Appendix B, in contrast, gives an overview of the data requirements by FSSIM and APES.
Appendix C contains an overview of the crop products used in SEAMLESS.
Appendix D is an extension to the cost extrapolation procedure described in chapter 4.
Appendix E contains the User Guide for the Detailed Survey.
Appendix F contains the User Guide for the Simple Survey.
Appendix G is a list of all variables collected with the simple survey by crop and regional land management units (= site classes).

2 Data collection process

The data collection process took approximately three years and involved several stages, which in part were carried out simultaneously. The process started with an identification of the data requirements by FSSIM and APES in the early phase of SEAMLESS (mid-2005) that resulted in the design of a first computer-based survey (= detailed survey).

The detailed survey followed the idea that a most complete data set on economic and ecological aspects of CAs should be collected in a number of 25 NUTS2[1] regions. Since the data collection and the model development of FSSIM and APES were carried out simultaneously, only incomplete information about the data requirements of APES and FSSIM were available in the early development phase of the survey. For instance, the development of the FSSIM crop module towards crop rotations was not completed, and both the FSSIM livestock module and APES were in very early stages.

To avoid time delay in the data collection, the database structure of an existing whole-farm model, MODAM, (Zander and Kachele, 1999; Zander, 2003, Schuler and Sattler, 2009) was used as basis for the detailed survey. The survey development involved (i) an adaptation of the MODAM database based on the knowledge on the data requirements of FSSIM and APES at that time, (ii) an extraction of the adapted data base into a newly normalised data base structure, and (iii) the development of a graphical user interface for entering production activities. Target group for the detailed survey were regional experts with sufficient knowledge in a broad range of fields such as agronomy, mechanics and marketing. Such experts have to be familiar with region-specific land management units and with regional agricultural practices. They should provide detailed information on crop rotations and the production processes of each crop. Estimates of yields but also of inputs should be based on long-term averages with respect to the realised yield level and the current practices of crop management.

A first round of data collection in five regions (cf.Table 1) revealed that the developed survey was very skill and time demanding. Therefore, options for reducing the workload for the survey were explored, e.g., through extrapolating costs for machinery and variable costs from other data sources. The data extrapolation was not followed up for two reasons. First, the extrapolation was not applicable to all crops and productions practices occurring in the SEAMLESS regions. Second, the initially identified data requirements changed due to the progress in the model development, thus making the extrapolation unnecessary. Machinery costs, for example, were no longer required to run FSSIM.

Around the mid-term evaluation of SEAMLESS it occurred that completing the detailed survey for all regions within a reasonable time frame and with the given resources would not be manageable. Therefore, halfway during the project, a completely new computer-based survey was designed (= simple survey). In regards to cropping data, this new simple survey contained a reduced data set. On the other hand, the simple survey contained variables for livestock production and policy implementation, which had not been part of the detailed survey.

Target group for the simple survey were regional partners (primarily SEAMLESS colleagues), who ought to take the needed data from national or regional publications in order to facilitate the filling-out process. However, particularly in regards to agronomic information, available publications often gave recommended instead of average observed values. In such cases, additional local experts were involved to help fill out the survey.

[1] NUTS - Nomenclature of Territorial Units for Statistics by Eurostat (http://ec.europa.eu/eurostat/ramon/nuts/home_regions_en.html)

Table 1: Detailed and simple survey regions

Region	Country	NUTS Level	NUTS code	Detailed Survey	Simple Survey
Alentejo	**Portugal**	**2**	**PT18**		**x**
Andalucía	**Spain**	**2**	**ES61**	**x**	**x**
Auvergne	**France**	**2**	**FR72**		**x**
Brandenburg	**Germany**	**1**	**DE4**	**x**	**x**
Castilla y León	**Spain**	**2**	**ES41**		**x**
Champagne-Ardenne	**France**	**2**	**FR21**		**x**
Danmark	**Denmark**	**0**	**DK**		**x**
Eastern Scotland	**United Kingdom**	**2**	**UKM2**		**x**
Emilia-Romagna	**Italy**	**2**	**ITD5**		**x**
Eszak-Magyarorszag	**Hungary**	**2**	**HU31**		**x**
Flevoland	**Netherlands**	**2**	**NL23**	**x**	**x**
Galicia	**France**	**2**	**ES11**		**x**
Highlands and Islands	**United Kingdom**	**2**	**UKM4**		**x**
Midi-Pyrénées	**France**	**2**	**FR62**	**x**	**x**
North Eastern Scotland	**United Kingdom**	**2**	**UKM1**		**x**
Northumberland and Tyne and Wear	**United Kingdom**	**2**	**UKC2**		**x**
Östra Mellansverige	**Sweden**	**2**	**SE02**		**x**
Podlaskie	**Poland**	**2**	**PL34**		**x**
Poitou-Charentes	**France**	**2**	**FR53**		**x**
Schwaben	**Germany**	**2**	**DE27**		**x**
South Western Scotland	**United Kingdom**	**2**	**UKM3**		**x**
Southern and Eastern	**Ireland**	**2**	**IE02**		**x**
Thessalia	**Greece**	**2**	**GR14**		
Uusimaa	**Finland**	**2**	**FI16**		
Zachodniopomorskie	**Poland**	**2**	**PL42**	**x**	

Already collected data for the five detailed survey regions were partially transferred from the detailed to the simple survey (as for as the variables were equal or could be calculated from the data) while livestock and policy variables were newly collected with the simple survey. In parallel, the data collection in the other 20 regions started. The difficulty in finding appropriate partners caused delay for some of the regions. In parallel, people also continued to fill out the detailed survey. After the mid-term evaluation of SEAMLESS, the final decision was made not to use the data from the detailed survey for FSSIM and APES but only data from the simple survey. Missing cropping data in regards to APES were provided by a rule-based approach. Meanwhile, the data collection with the simple survey continued and was finished around October 2008.

All collected data were stored on a local server at ZALF. The data migration from this server to the SEAMLESS Integrated Database, which was developed in parallel with the data collection, took place periodically and involved a complex, only partially automated data transfer over several intermediate databases. Intermediate data updates and changes made after the last migration in mid-2008 were exchanged via Excel files.

The conduction of the simple survey for another region would approximately take two months (including data checking), of which the actual filling-out of the simple survey, if all data are available, should not take more than two days.

2.1 Data requirements for CAs

Table 2 gives an overview of relevant management procedures characterizing CAs in FSSIM and APES Table 3 specifies the relevant items the surveys should deliver. The text below the tables explains these items as well as how the detailed and simple survey deal with them. A more detailed description is given in Appendix B.

Table 2: Data requirements of APES and FSSIM (not provided by the FADN)

Management options	APES			FSSIM		
	Timing	type	amount	amount	machinery	labour requirement
Planting (sowing, transplanting)	X	-	-	X[a]	X	X
Tillage						
tillage 1	X	X[b]	-	-	X	X
tillage..	X	X[b]	-	-	X	X
tillage 3	X	X[b]	-	-	X	X
Nitrogen fertilization (inorganic, organic)						
fertilization 1	X	X[c]	X[d]	X[d]	X	X
fertilization..	X	X[c]	X[d]	X[d]	X	X
fertilization 3	X	X[c]	X[d]	X[d]	X	X
Irrigation						
irrigation 1	X	X[e]	X	X	X	X
irrigation ..	X	X[e]	X	X	X	X
irrigation 3	X	X[e]	X	X	X	X
Chemical protection/weed control						
application 1	X	X[f]	X[d]	X[d]	X	X
application ..	X	X[f]	X[d]	X[d]	X	X
application 3	X	X[f]	X[d]	X[d]	X	X
Harvesting						
harvest 1	X	-	X	X	X	X
harvest ..	X	-	X	X	X	X
harvest n	X	-	X	X	X	X
Post-harvest (yield processing, yield conservation)	-	-	-	-	X	X

[a] amount of seeds or plants per unit ground.
[b] depth is the relevant attribute associated to type of tillage.
[c] type of fertilization strategy out of broadcast, incorporation, injection.
[d] amount of active chemical for APES (e.g. nitrogen form in nitrogen fertilization), amount of commercial source (e.g. urea) for FSSIM.
[e] type of irrigation strategy out of furrow, sprinkler, drip, sub-irrigation.
[e] type of application strategy out of surface broadcast, crop spraying, incorporation, injection.

Table 3: Biophysical and technical variables to be delivered by the survey

Variable	reference unit	Comment
Event timing	relative date, days before/after event	event synchronization based on five events: sowing, emergence, flowering (begin/end), maturity, harvest
Labour/machinery requirement	h ha^{-1}, ha d^{-1}	time required per unit ground (e.g. hours required to cover a unit ground with an operation), or unit grounds per time unit (e.g. area covered by one worker in one day)
Seed rate	n m^{-2}, kg m^{-2}	number of units (seeds, plants) per unit ground, or units of weight per unit ground
Tillage depth	m	any unit of length (e.g. cm), meter being the reference unit
Fertilizer	kg ha^{-1}	any units of weight per unit ground (e.g. kg m^{-2}, t ha^{-1})
Irrigation water	mm (=kg m^{-2})	any units of weight per unit ground
Chemical	kg ha^{-1}	any units of weight per unit ground (e.g. kg m^{-2}, t ha^{-1})
Yield	kg ha^{-1}	any units of weight per unit ground (e.g. kg m^{-2}, t ha^{-1})

Crops/rotations
A ***crop*** in SEAMLESS is defined by:

- botanical species, sometimes complemented by type of growth period (e.g. winter versus summer barley)
- product type, which can be classified by plant part used (e.g. shoot or corn), product processing (e.g. hay, silage, green) and product quality (e.g. fodder or food), and
- production orientation, indicating general differences in the production process, such as conventional versus organic farming

Together, this results in a classification of the crop and its main product, e.g. "Barley, winter – grain, fodder". Appendix C contains a complete list of all SEAMLESS products.

The position of a crop in a certain ***rotation*** indicates a fourth dimension of the crop. In the Detailed Survey the position in the rotation can be used to modify crop management (e.g. cereal following alfalfa is given less fertilizer than the same cereal following another cereal). While the Detailed Survey allows for a detailed consideration of rotational effects, the simple Survey represents rotations just as a simple order of crops that can not be adapted to their position in the rotation. Rotations may have various lengths, from monocrop (1-year rotation) to 2-year, 3-year, …. rotations. Long rotations are likely to occur in Mediterranean areas.

Irrigation in the Simple Survey is taken as a fifth dimension of crops. The user has to choose for every crop whether it is irrigated or not. In the Detailed Survey, this differentiation is done among the management procedures, but can of course as well be used to classify crops.

Crop management
In the Detailed Survey "Typical" management procedures have to be assigned to each selected crop. Common issues of relevance for FSSIM among various management items are machinery used (e.g. type of tractors and implements) and labour requirement. The Simple Survey regards management procedures merely via the applied amounts and their variable costs.

Timing of measures
Timing (relative dates, phenologic synchronization) is regarded as on- or off-season "time windows" being suitable for applying each management practice. With respect to phenology synchronization, five basic events are important: (i) sowing, (ii) emergence, (iii) flowering (begin/end), (iv) maturity and (v) harvest.

While the Detailed Survey asks for precise information on "time windows" for every management procedures, the Simple Survey just asks for the Sowing date. Actually, Simple Survey data are completed by expert based management rules that provide the data required by APES. The Detailed Survey defines dates in the following format:

Month - "number of 10 days period" - Year

Here, year is defined as "1" if the date falls in the year of the harvest and "0" if it falls in the previous year. Accordingly, 06-01-1 means that the respective management procedure was accomplished in the first third of June during the harvest year of the crop.

Planting
Depending on the crop regarded, planting may be in form of sowing, planting or, less commonly, transplanting (e.g. tobacco). Rates of seed or plants required (e.g. number of seeds/plants per unit ground, weight of seeds/plants per unit ground) have to be requested for economic reasons. This is done in both surveys, in the Detailed via amount in price per management procedure, in the Simple Survey as a figure among the variable costs of a certain crop. That is, there is no differentiation between types of planting/sowing and the applied amounts of seeds/plants.

Tillage and crop residue management
The list of tillage operations in the Detailed Survey includes different types of tillage that serve different purposes (e.g. seedbed preparation, mechanical weed control, crop residues incorporation, land conservation). Machineries used are of importance as they are assigned to both technical issues required by APES (i.e. tillage depth) and economic issues required by FSSIM. Machinery costs are not part of the Simple Survey.

Fertilization
Nitrogen fertilization can be in form of either inorganic or organic application. In both cases, the amount of nitrogen distributed, to be distinguished according to the chemical nature of nitrogen (i.e. nitrate or ammonium), is relevant for APES. The position of a crop in a rotation is likely sensitive to nitrogen fertilization. The source of nitrogen (urea, calcium nitrate, …) can be insofar relevant for FSSIM as costs are likely to vary between these different sources. The application methods (i.e. surface broadcast, incorporation, injection) and consistency (liquid, solid) are relevant, too. The basic requirement from organic nitrogen fertilization is the percentage of nitrogen in organic manure, that is essentially in the form of ammonium (NH_4^+) and will increment the pool of soil ammonium nitrogen after mineralization (nitrogen in the nitrate form, NO_3^-, is not incorporated into organic material). An inorganic fraction in the form of ammonia (NH_3) is at times associated to animal wastes and may generate some volatilization losses at application time. The definition of the organic fertilizer used (poultry, dairy, beef swine; fresh, aged; ...) may allow to estimate ammonium and ammonia fractions via summary tables that should be as much homogeneous as possible across all European regions.

APES is not supposed to be sensitive regarding fertilizers different from nitrogen (phosphorous, potassium, …). However, information on kind and amount of non-nitrogen fertilizers have to be collected as well since different inputs influence the variable costs as part of the farm optimization by FSSIM. While the Detailed survey asks for technique, active ingredient, amount and price of fertilizers, the simple Survey just collects the amounts used and the variable costs caused by these fertilizers.

Irrigation
For irrigated crops, both the number of irrigation events, and the water supplied in each event depend on the seasonal weather conditions. The concept of "window" can be useful in this context to extract the "average" number of irrigation events and water amount as well as some variability attached. The application method (i.e. furrow, sprinkler, drip, sub-irrigation) is relevant as well. This information is collected by both surveys, but the time frame of the Simple Survey is rougher – per farming period.

Chemical crop protection/weed control
Chemicals other than fertilizers (fungicides, insecticides, herbicides ...) contribute to the pesticide component of APES (active chemical) and furthermore they are part of the variable costs (commercial product). While the Detailed survey asks for application method (i.e. surface broadcast, spraying, incorporation, and injection), active ingredient, amount and price of fertilizers, the simple Survey, again, just collects the variable costs caused by these procedures and the amounts applied.

Harvesting/yields
Harvesting is usually a single event at the end of the growing season. Multiple clipping actions may occur in the course of the growing season of grasses. Often multiple products (e.g. main product plus marketable by-products) are harvested. For each crop and production technique, a range of yields is needed to benchmark and calibrate APES. e.g., maize rain fed (yield range), and maize irrigated (yield range). Dry matter per unit ground is the appropriate unit for yield. This might be an issue as fresh yield is the most common value available (suitable fresh to dry matter conversion factors will be required). The yield also influences

(besides from market price and premiums) the revenue of a crop, which is a requirement of FSSIM. The detailed survey asks for all these details. The Simple Survey just collects yield and price, thus total revenues, per mayor and by product.

2.2 Differences between detailed and simple survey

The detailed survey includes only crop management data, this however in a very detailed way, while the simple survey asks for primarily economic and easy-to-obtain information on crop, livestock, and policy implementation (Table 4).

Table 4: Comparison of detailed and simple survey

		Detailed Survey	Simple Survey
data collected	crop data	✓	✓
	- influence of the crop rotation	✓	
	- externalities of crop production	✓	
	livestock data		✓
	policy implementation		✓
data sources	public database		✓
	expert knowledge	✓	(✓)
information type	mainly agronomic information	✓	
	mainly economic information		✓
user interface	hierarchic structure	✓	
	server based	✓	✓
	data store directly in a database	✓	✓

2.3 Data evaluation

For data were provided by a wide range of people from different countries with different data standards, the collected data were at risk to differ not because of absolute differences but because of differences in definitions and scale. To avoid this problem, detailed user guides were compiled for both surveys (cf. Appendix E, F).

Raw data analyses accompanied the entire data collection process. The regional partners were informed via email about inconsistencies or inappropriate entries in the survey and were asked to check and edit the data if necessary. Checks for completeness were an integrated part of the simple survey (if/then queries). For example, if the number of pesticide applications is greater than zero, the costs for pesticide application must be greater than zero, too.

Intermediate cross regional data checks were performed at several stages of the data collection to inform about the progress of the survey. As in the beginning of 2008 (Oslo meeting) large parts of some regional data sets were still incomplete, interactive data checks between regional partners and ZALF were intensified (until mid-2008).

The validity of the surveyed data was more difficult to check. The quality of the surveyed data could not be assessed analytically because of unavailable other data sources to check the data against. However, expert-based plausibility checks were performed, particularly in the last third of the data collection. These analyses identified data gaps and data errors (both simple and detailed survey), which could partially be closed or solved. Other inconsistencies

remained, as for example the responsible partners were no longer involved in the project. The finally achieved data quality is not for all regions satisfying.

More co-ordination and co-operation is required to develop standards for data collection and presentation and to allow for the processing of raw survey data for specific purposes (economic partial analysis, modelling). Data collection and migration from one database to another as well as the processing of the data need more transparency and documentation. In the future, experts and modellers should not singularly evaluate the collected data separate from the models, but also in regards to their impacts on the results of the models

3 Computer-based surveys

3.1 Detailed Survey

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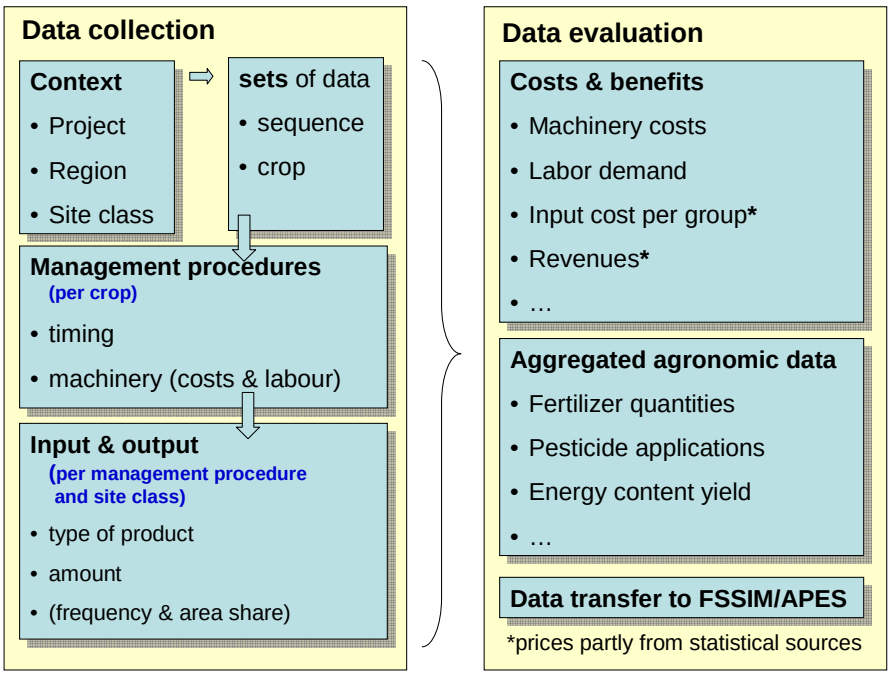
Figure 1 shows the general setup of the detailed survey. The user guide for the detailed survey can be found in Appendix E. The data collection starts with the definition of context: project, region, site classes. Then sets of data can be defined and within each set a number of crop-sequences and within each sequence a number of crops. For every of the crops, management procedures with timing and related machinery data are entered and for every management procedure a number of relevant inputs or outputs can be entered with a site specific quantity, frequency and area share. After completion of the survey (or parts of it), data are evaluated by automatic procedures that aggregate costs and benefits into one overview and aggregated agronomic data in a second overview. Finally, the data are transferred to the SEAMLESS database that feeds the models FSSIM and APES.

Figure 1: General structure of the detailed survey



3.1.1 Graphical user interface

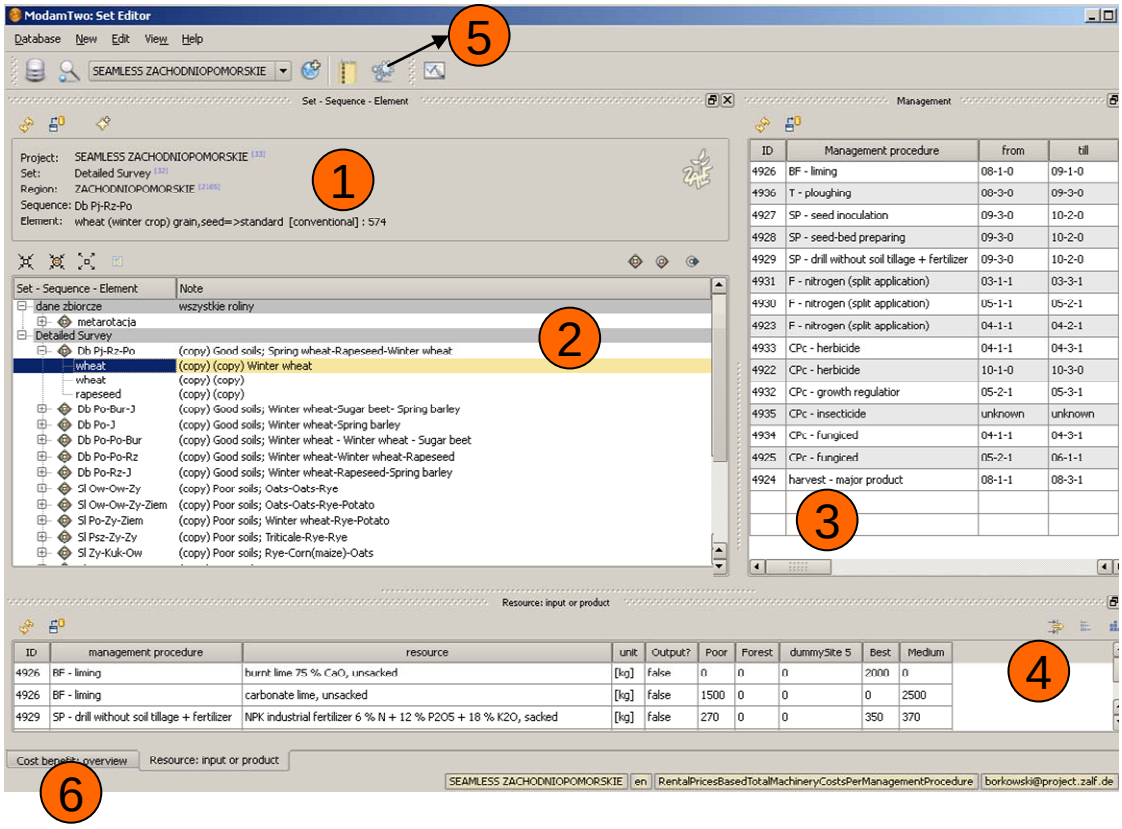
The survey's Graphical User Interface is designed to obtain the most comprehensive set of information on production practices with a minimum of effort while giving the best possible overview of already entered data. The procedure of entering data consists of four consecutive steps, but allows for iteratively working on these steps. The first step (see Figure 2 ①) is to generate the context of the data (project, region, agro-environmental zones = site class) and to select the calculation approach for machinery costs. In SEAMLESS these projects are the Detailed Sample Regions. In the next step (Figure 2 ②) for each project, several sets of data can be established. For SEAMLESS Sample Regions this is mandatory a set called "Detailed Survey", from which data are uploaded into the SEAMLESS Integrated Database. However, the user is free to create some more sets, e.g. a test set for his needs. Then rotations are defined - here called as sequences - and the crops of which they consist inserted - here

elements. The next step (see Figure 2 ③) is to add management procedures and their corresponding execution period to the crops. This implies that every crop obtains specific information e.g. wheat after sugar beet is another crop than wheat after rape.

After completion of crops and their respective management procedures, the user can enter in- and output data per management procedure. However, in order to do so, the establishment of at least one regional site class is essential. The short name of the site class then appears as column header in the window that presents in- and outputs for all or for individual management procedures (cf. Figure 2 ④). Therefore, this information is not only per crop and rotation but also per site class.

Site classes have to be related to agro-environmental zones (AEZ) - the zoning approach of SEAMLESS. A site class is not necessarily identical with one AEZ. The background of this approach is the reliance on regional experts, which are not familiar with the SEAMLESS zoning and would not be able to relate the crop production activities to the AEZ. Allowing a local zoning approach facilitates the work of the local experts and allows for collection of differentiated regional data sets.

Figure 2: Main entrance window of the detailed survey



Around the three docked windows ②, ③ and ④, there are additional data available: In the upper left corner, the actually selected data context and hierarchy is summarised: marked element, sequence, set and project (①). In the status bar at the lower border of the GUI, cost calculation type, language, user and host are shown. To allow for the gross margin calculation, total machinery costs and labour requirements can be specified in a specific window (Figure 2 ⑤). This will be explained in a separate section on machinery costs below.

The evaluation of entered data is presented in two separate windows (Figure 2 ⑥): One for agronomic and one for economic data. The first presents input and output quantities in

aggregated form and the latter costs, revenues and labour requirements of the needed machinery. Both rely on the chosen management procedures.

An example how to enter data with the GUI is given in Figure 2 which shows the data of the Polish Detailed Sample Region 'Zachodniopomorskie'. The partners of that region added an additional set called zdane biorcze. This set contains all crops grown in that region within a so-called meta rotation. By copy and paste, these crops were assigned to rotations that are created in the mandatory Detailed Survey set. The upper left window lists the sets and their rotations. In the screenshot one of the crops is marked: wheat after rape. Therefore, the entered data concerning this particular crop are shown. On the right side, the respective management procedures are scheduled. The lower window includes the resources, that is the in- and outputs of the crop. For these in- and outputs as much columns as site classes defined for Zachodniopomorskie, are available to allow for the input of a specific amount per site class.

3.1.2 Gross margin calculation

The GUI supports the calculation and presentation of costs per management procedure. The gross margin per production activity *n* is calculated as follows:

Gross margin I $GMI_n = R_n - VC_n$

with

$R_n = \sum_i Q_i * P_i$ *Revenues*

$VC_n = \sum_j Q_j * P_j + \sum_m MC_m$ *Variable costs per production activity*

$MC_m = \sum_o (L_o * VC_o)$ *Machinery costs per management procedure*

Gross margin II $GMII_n = GMI_n - LC_n$

with

$LC_n = \sum_m L_m * W$ *Labour costs per production activity*

n	=	*Production activity*	
m	=	*Management procedure*	
i	=	*Input*	
j	=	*Output*	
o	=	*Machinery based working operation*	
Q	=	*Quantity*	kg,l
P	=	*Price*	€
VC_n	=	*Variable costs per production activity*	€
VC_o	=	*Variable costs per machinery based working operation*	€/h
MC_m	=	*Machinery costs per management procedure*	€
MC_o	=	*Machinery costs per machinery based working operation*	€
L_m	=	*Labour demand per management procedure*	h
L_o	=	*Labour demand per machinery based working operation*	h
W	=	*Wage per hour*	€

Inputs encompass seeds, fertilizers, pesticides, water for irrigation, maybe insurances and drying costs. Prices of these inputs and for the products (outputs) have to be entered separately into the database. For Brandenburg detailed data are available, while for other regions we have to use statistical data or separate data sheets with local information.

By means of these economic data, the survey is able to compute two types of gross margins: gross margin I and through inclusion of labour costs gross margin II. If detailed information about machinery and related quantities is available, the labour demand per working operation can be calculated. If this information is not available, the labour demand has to be provided, optionally separate for full time farm labourer as well as seasonal workers per project. The two labour variables reflect the fact that in some cases part of the work is executed by permanent staff of the farm while other parts are executed regularly by cheaper seasonal labour. With that distinction, it should also be possible to reflect the limitations to the total labour that can be managed by a farmer, as the total amount of seasonal work that can be managed by the farmer is as well limited.

3.1.3 Machinery costs and labour requirements

The GUI of the detailed survey supports three different ways to enter or calculate costs of machinery and labour requirements:

- KTBL based calculation of costs
- Cost definition per management procedures based on rental prices
- Total costs directly given per crop

For all three techniques applies: The final costs and labour values are shown in the tab (Cost benefit: overview – see Figure 2 ⑥). The three ways to enter machinery data depend on different availability of data: For Brandenburg the management procedures are coupled with detailed **KTBL machinery data**, which allows for the calculation of labour and machinery costs specifically for processed amounts and the transport distance between field and farm-stead. The calculation method is based on KTBL machinery data (Kächele, 1999; Zander, 2003) that are by choice of a certain technology connected to the management procedures. However, as the procedure is based on German data, this is merely applicable for Brandenburg (or other potential German regions).

For Flevoland **rental prices** and labour demand are available for every management procedure. For Midi-Pyrenees and other regions **total labour demand and machinery costs per crop** can be entered in the window under the tab Cost benefit: overview (Figure 2 ⑥). The way machinery data are entered has to be chosen once per project. The GUI then shows the corresponding possibilities to enter data.

Fixed and variable costs are not differentiated here, as in several countries agricultural service costs (rental prices) are used, which consist of fixed and variable costs and a profit contribution for the contractor. To permit comparability of costs the KTBL calculation includes as well fixed costs and should be included when directly entering total costs as well. In doing so, it is assumed that all machines are used to the limit of depreciation.

3.2 Simple Survey

Nina Borkowski, Peter Zander, Sandra Uthes

The simple survey structure differs considerably from the organisation of the detailed survey.

The user guide for the simple survey can be found in Appendix F.

The crop part of the simple survey consists of only one list of variables to be filled out for all crops grown in a region. The set of crops for a region is pre-defined through an included list of crops from the FADN data for the respective region. On a separate sheet, individual crops are combined to rotations. These data on rotations provide the opportunity to use a kind of Simple APES also for Simple Regions if this appears to be necessary. In contrast to the Detailed Survey, information is entered per crop not per crop and rotation. Hence, wheat after sugar beet is the same crop as wheat after rape.

Livestock divides into one sheet each for beef cattle, dairy cattle, small ruminants for dairy, small ruminants for meat, and grassland use with differing variables for each branch and three production intensities (see Appendix E). The first variable is either milk production or daily weight gain. By inserting figures here, the respondent defines automatically the intensity levels in his region.

The policy part consists of three single sub-parts with different structures. There is one referring to CAP compensation payments, cross compliance and agri-environmental measures as well as national subsidies respectively.

3.3 Technological background

J.-Martin Hecker

The SEAMLESS surveys are designed as a client-server solution and build on postgreSQL (postgreSQL.org, 2007) – currently v.8.3 – as database backend in combination with rich clients – most of them scripted with Python. The clients within SEAMLESS are

1. The SEAMLESS Detailed Survey (DS)
2. the SEAMLESS Simple Survey (S3)

Both are written in python v2.5 (python.org, 2007) as programming language in conjunction with the Qt framework (trolltech.com, 2007). Qt is a C++ framework for diverse purposes and applications. For the surveys, we used especially the SQL (database) and the GUI libraries of v4.3. These Qt libraries on their part are wrapped with SIP and used via PyQt (both riverbankcomputing.com, 2007) which are Python bindings for v4 of the Qt application framework from trolltech.com. The whole tool chain supports cross platform programming. Therefore the products will run without any changes on current Microsoft© operating systems, all Unix derivates, and OS X as well.

Users have to install a small software application on their computers and gain access to the system through an account with an individual password for each user. Each user can only enter data for the regions he or she is registered for. All data are stored in a postgreSQL database on a server at ZALF, Germany and from there are uploaded to the SEAMLESS Integrated Database.

3.3.1 Database backend

PostgreSQL is an object-relational database management system (ORDBMS). It supports a large part of the SQL standard and offers many modern features, for example complex queries, foreign keys, triggers, views, transactional integrity, and a fine grained role system, which manages the DB access permissions. In addition, the user can extend PostgreSQL in many ways, for example by adding new data types, functions, and procedural languages. It has native programming interfaces for C/C++, Java, .Net, Perl, Python, Ruby, Tcl, ODBC, among others, and good documentation. PostgreSQL is released under the BSD license.

The database is structured via schemas, which allows grouping the content of the database like tables, queries and other objects in specific thematic sets. Most of the core MODAM database objects (dbObjects) are located within the schema core. The S3 dbObjects and DS dbObjects resides in the schema simple and set respectively. For each of these schemas there are collections of views (and sometimes other objects) to provide an overview of the particular schema: simple_overview, set_overview, etc. For the DS the relevant views are located in seamless_overview.

3.3.2 Clients

A client is a locally installed piece of software that needs services from a more or less remote server and cooperative transactions over a network (internet). An installation package delivers the client software. The package consists of python, Qt, SIP, PyQt libraries and the particular client executable. The design of the GUI follows a typical survey approach with closed i.e. prepared data sets that are available via drop down menus or equivalents. The interviewee, customer or expert has to combine or arrange these prepared data. On program start, the user has to fill in an authentication form to connect to the database server. If these login data are a registered combination, the login is allowed and the S3 or DS opens the GUI with the appropriate regions or projects respectively. This key of authenticated user and assigned region (resp. project) guarantees that only allowed users can edit their data.

The Seamless Detailed Survey (DS) client
This client is developed very close to the MODAM equivalent (SetEditor). Most of the prepared data are located within core. The structures i.e. dbObjects, which represent the combinations, assignments, and quantities, are located within set, and the cost-benefit branch within set_cost_benefit. Further descriptions of the general data structure and cost benefit calculations can be found in the respective chapters and manuals, which are also part of the appendix (for the user guide of the detailed survey, see Appendix E).

The Seamless Simple Survey (S3) client
The S3 client is nearly independent of the MODAM core. The underlying, server side dbObjects reside either in schema simple or simple_overview. The variable tables contain the used variables, e.g. simplecropvariable the crop variables. These tables of variable definitions are extendible and the GUI adjusts itself if any change appears. The quantities, i.e. values are within the container tables (e.g. simplecontainercropdata). These tables resolve the various M:N relations, especially between sample region, crop/livestock, and variable. The site classes and intensity classes respectively are then listed for each of these combinations (for the user guide of the simple survey, see Appendix E).

4 Exploration of cost data extraction possibilities from FADN data

SEAMLESS is primarily a methodology-oriented project, and not a data collecting project. Only after attempts towards obtaining data from other sources had appeared to be a dead end, carrying out surveys became a commonly accepted task. This chapter describes how machinery costs and variable costs for CAs could be derived from FADN data.

The current version of FSSIM does not require machinery costs, hence an extrapolation of machinery costs became eventually unnecessary. If in future applications, the consideration of machinery costs should become an issue, the presented extrapolation approach can be useful. A general limitation of the procedure is, however, that it is restricted to the crops and production practices found in the German data (= reference region). For example, dominating crops in the German region are winter rye, and winter wheat. In a Dutch region, the most relevant crops are winter rye, winter wheat, and onions. Extrapolating data from the German to the Dutch region works fine for wheat and rye, but not for onions, because there exist no reference machinery costs for onions in the German region that can be used for extrapolation.

During the project term, it was also tested whether variable cost data actually have to be collected with the surveys or whether they could instead be derived from FADN data. Variable cost data from the FADN are available for individual crops aggregated over all farms belonging to a particular farm type (average data). The data allow for the calculation of average values per farm or hectare for a certain farm type, but not for deriving variable costs for different production practices embedded in different crop rotations (the activities in FSSIM)**,** because the FADN data consider neither different production practices, nor rotational aspects.

Because of these limitations, the two methods were not used for the definition of CAs, but they are documented here for reasons of completeness. Machinery costs were not used at all, while variable costs were taken as collected with the simple survey.

4.1 Machinery costs

Grete Stokstad

Differences in machinery costs between regions can result from different machinery prices, or from differences in the level of mechanization and the use of different types of machinery. For example, small plots or hilly regions require smaller machinery that often may be more costly per hectare than large plots. On the other hand, efficient machinery may be profitable because it results in lower labour costs per hectare, less use of inputs as fertilizers and herbicides even though the recorded machinery costs may be higher than for less efficient machinery.

The basic idea of extrapolating machinery costs from detailed to simple survey regions, is to use total machinery costs from the FADN (aggregated per farm) to derive a cost-factor for each region expressing how much the machinery costs in region x differ from the machinery costs in region y. The machinery costs from one of the detailed survey regions (e.g., the German region Brandenburg) collected for different production practices have to be chosen as reference by assigning a cost-factor of one. By multiplying the machinery costs of the reference region with the cost-factor derived from the FADN, machinery costs from the detailed survey can be extrapolated to other regions.

Extrapolation of machinery costs for (any) region involves two stages:

- Explain the observed total cost for machinery in the FADN-database as a function of region and other relevant factors.
- Use the regional impact (cost-factor) from the model in addition to data from one particular region to come up with detailed cost data for other regions.

Model

By choosing a functional form we make already some assumptions about the relationship between factors that may affect cost of machinery. We could for example assume that cost per hectare can be explained by a linear function, where the various factors have an additive effect on each others (what is grown, how it is produced and what type of farm we are looking at). However, a nonlinear formulation of the model seems more appropriate, as it facilitates to obtain is an index that can be used to convert cost data from Germany to data that represent cost data from another regions.

The available data also limits what type of relationship we can assume. For example we do not know what type of crops that are organically grown. The models below utilize that we have these types of data:

D_r = is dummy variable identifying the region r

q_j = continuous variable describing the production method or crop on the land

D^k_k = dummy variables characterizing the type of farm (intensity and scale).

Model 2 is the main model. The other two models are included to help evaluate the result.

Model 1: $\text{Euro/ha} = \Sigma_i \beta_r * D_r * \alpha_0$

Model 2: $\text{Euro/ha} = \Sigma_i \beta_r * D_r \, (\Sigma_j \alpha_j \, q_{jr} + \Sigma_k d_k \, D_{kr})$

Model 3: $\text{Euro/ha} = (\Sigma_j \alpha_j \, q_{jr} + \Sigma_k d_k \, D_{kr})$

Coefficients

β_2 is set to 1 (one) for Germany (DEU). Thus β_r represents the relative difference between machinery costs between the German region and region r. When $\beta_r = 1$ there is no difference between these regions. α_0 is the "average" cost per hectare in the Germany. α_j and d_k are coefficients that are used to describe the variation between farm types and crops (data q_j and D^k_k). α_j can be interpreted as the cost per hectare given that q_j s represent the share of area devoted to a particular method or crops. D^k_k represents the change in cost per hectare that is due to this characterization.

Model 3 and Model 1 represents two extremes. Model 1 assumes that costs differences are due only to differences between regions, not to what they grow or to the type of arable farm. Therefore, here, any differences between the countries are due to differences between regions.Model 2 includes both sources for variation between observations. Results from Model 1 and 2 can be compared to see to extent it is important to account for what they grow or farm type when we compare costs. Probably, this is the preferable method.

Model 3 facilitates comparing Model 2 with a model where we assume that there is no difference in machinery costs between regions. The idea is to use β_r directly as an index to compute new values for a region. If there are cost data for various types of German farms available, this is all we need. However, the German data can also be adjusted to represent the type of farm for which we are looking. (For example adjust the medium scale and medium intensity farm we may have

data for to data for a small scale high intensity farm.) However, in this application particularly the coefficients for organic farming appear suspicious. Organic farming is a very small fraction of the area in this dataset.

Data

The data used is arable farm data from the FADN data in the SEAMLESS database.

The observations were divided into 9 regions (Table 5). Countries with relatively few data are included in a "similar" region. BEL and NED have quite different mean values for cost per hectare, but they are located next to each other. Therefore, it is likely that the same type of farm should have quite similar machinery costs. Four of the eastern European countries are combined in one region, due to too few observations. Besides, there are also data for only one year available, while for the previous EU-countries, data observations for 3 years are used.

Table 5: Regions and number of observations in the dataset

Number of observations from each country in the dataset		Countries combined to regions in the estimation
NED	5	CZE,ETO,SLO,LIT
IRL	6	DEU
ETO	8	BEL,NED
CYP	8	CYP,ELL
BEL	11	DAN
SLO	11	FRA
CZE	12	UKI,IRL
LIT	12	ITA
AUS	24	SPA
DAN	34	SWE,SUO
SWE	50	AUS
POL	53	HUN
SUO	59	
UKI	65	
HUN	79	
ELL	119	
DEU	215	
SPA	228	
FRA	235	
ITA	470	

The figure below shows the mean values for machinery cost per hectare. The lines in the figure show the 95% confidence interval for the observations.

Figure 3: Mean values and standard deviations for machinery costs per country

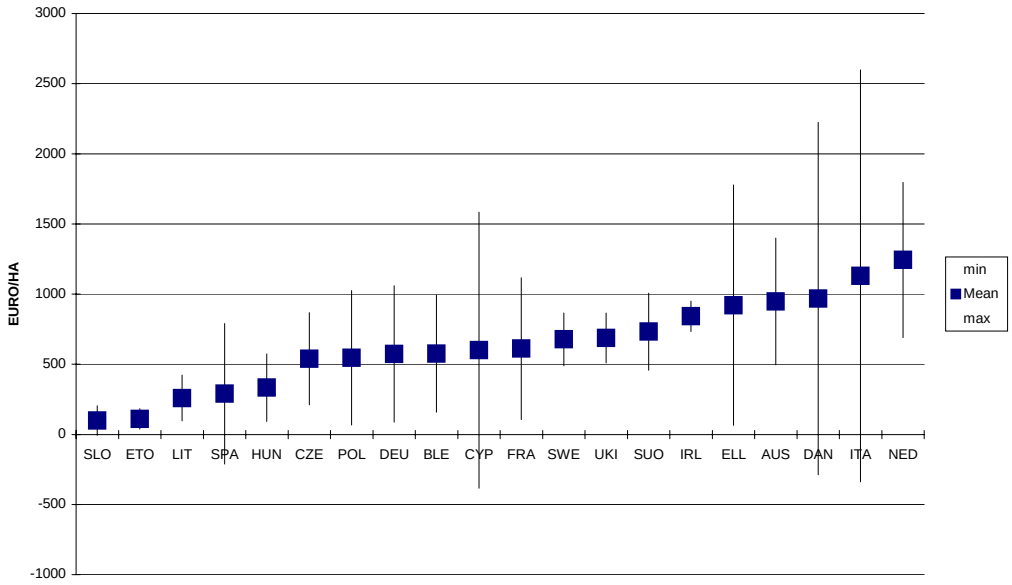


Table 6 below shows the mean values in the data sample. It is 1651 observations behind the mean.

Table 6: Mean values in the data sample used in the estimation of the models

Label	Mean	Std Dev	Minimum	Maximum
EURO/ha	733,76	556,204	9,2017	6585,68
Small scale	0,1696	0,37539	0	1
Low Intensity	0,1169	0,3214	0	1
High intensity	0,0388	0,19309	0	1
Potatoes	0,017	0,0554	0	0,64635
Cereals and oth. field crops	0,7626	0,17587	0,0413	0,98925
Industrial crops	0,0181	0,06617	0	0,8415
Vegetables and flowers	0,027	0,07623	0	0,82841
Perennials (all)	0,0637	0,12691	0	0,92685
Fodder production	0,066	0,08345	0	0,89722
Fallow etc.	0,0455	0,06058	0	0,89998
Irrigated area	0,1242	0,17549	0	1,01836
Organic area	0,0257	0,03067	0,0005	0,20531
Livestock units per hectare	0,1021	0,1435	0	1,50815

Results

The difference between Model 2a and 2b is whether organic farming is included as an explanatory variable or not. These two versions are used since the coefficient for organic farming is quite suspicious. This coefficient describes the additional cost per hectare when an area is grown organically. Organic farming has a very low share of total area in most regions. Thus, the

impact on cost per hectare is small even though the coefficient for additional costs when an area is grown organically is large.

Table 7 below shows the parameter estimates and the respective standard deviations. There is definitely some multicollinearity between the crop shares (q) that may explain the quite unstable estimates. More information about the models is given in Appendix D.

The bold number (β_r) shows the factors to use when computing cost for other regions than the German regions. Model 1 shows values where we do not account for these machinery costs can differ due to different production. In Model 2 variations are explained both by differences between countries as well as production method.

The coefficient for additional cost when land is grown organically is particularly suspicious. However organic farming is on average only 2,5 percent of the area the impact on the model in most countries is therefore small. However, an alternative Model 2b is given that does not account for organic production. As expected the cost per livestock unit increase as well as the cost associated with the main crops (cereals and other field scale crops).

Table 7: Model results

	Model1		Model2 a		Model 2 b		Model 3	
	Estimate	St. error	Estimate	St. error	Estimate	St. error	Estimate	St. error
β_r								
DEU - by definition :	**1**		**1**		**1**			
CZE,ETO,SLO,LIT	**0,47**	0,13	**0,84**	0,14	**0,80**	0,15		
BEL,NED	**1,37**	0,22	**1,85**	0,21	**2,21**	0,27		
CYP,ELL	**1,57**	0,11	**1,16**	0,09	**2,26**	0,15		
DAN	**1,69**	0,17	**1,63**	0,10	**1,76**	0,12		
FRA	**1,07**	0,08	**1,23**	0,07	**1,33**	0,08		
UKI,IRL	**1,22**	0,12	**1,48**	0,10	**1,50**	0,11		
ITA	**1,97**	0,12	**1,93**	0,12	**2,84**	0,16		
SPA	**0,51**	0,06	**0,63**	0,06	**0,78**	0,07		
SWE,SUO	**1,24**	0,10	**1,67**	0,11	**1,76**	0,12		
AUS	**1,66**	0,19	**2,44**	0,21	**2,72**	0,24		
HUN	**0,58**	0,10	**0,77**	0,09	**0,80**	0,10		
Intercept, α_0	572,60	31,70						
Potatoes q_1			300,6	86,66	107,6	61,03	704,8	179,97
Cereals & oth. field crops q_2			344,4	23,64	370,9	22,98	394,4	26,24
Industrial crops q_3			109,5	74,75	-25,9	53,31	81,3	150,85
Vegetables and flowers q_4			103,3	70,32	8,0	55,41	467,7	131,76
Perennials (all) q_5			50,5	39,92	-33,1	28,73	155,6	80,77
Fodder production q_6			58,5	61,07	32,8	50,08	524,6	115,13
Fallow etc. q_7			121,4	94,87	-107,5	62,01	-146,3	164,15
Organic area q_7			5500	536			10618	464
Livestock units per hectare q_8			718,2	57,11	852,9	51,30	748,4	81,64
Irrigated area q_9			391,2	48,22	355,6	37,55	448,5	67,99
Small scale D^k_1			-62,4	20,64	122,0	13,09	-171,8	34,41
Low Intensity D^k_2			-95,9	19,86	-87,6	16,02	-158,2	33,15
High intensity D^k_3			167,4	32,95	131,4	24,29	290,4	60,63

CYP + ELL is a large data sample dominated by ELL. These regions have a larger share of organic farming than most other regions: ELL 7% compared to a mean of 2.5. The same applies for Italy, with a mean of 4% for organic area. The costs associated with organic farming clearly is overestimated in the model, thus the result of Model 2 is also clearly an underestimation of the relative costs between Germany and these regions.

BEL + NED is a very small sample of farms, thus the standard error is large for theses estimates. Model 2 and 3 suggest that the Model 1 result is an underestimation of the costs per hectare. The negative coefficient for fallow land in Model 2b and 3 can possibly be explained by its positive correlation with both cereal share and share devoted to fodder production. For both ITA and ELL, the figure with the means and the line indicating the standard deviation shows that there is a large variation on the data material. Thus, the best thing to do is probably trying to explain the national variation in a better way so the important variables for these regions can be included in the total model.

Figure 4: Relative machinery cost between regions, estimates based on Model 1 (M-1) Model 2a (M2a) and Model 2b (M2b)

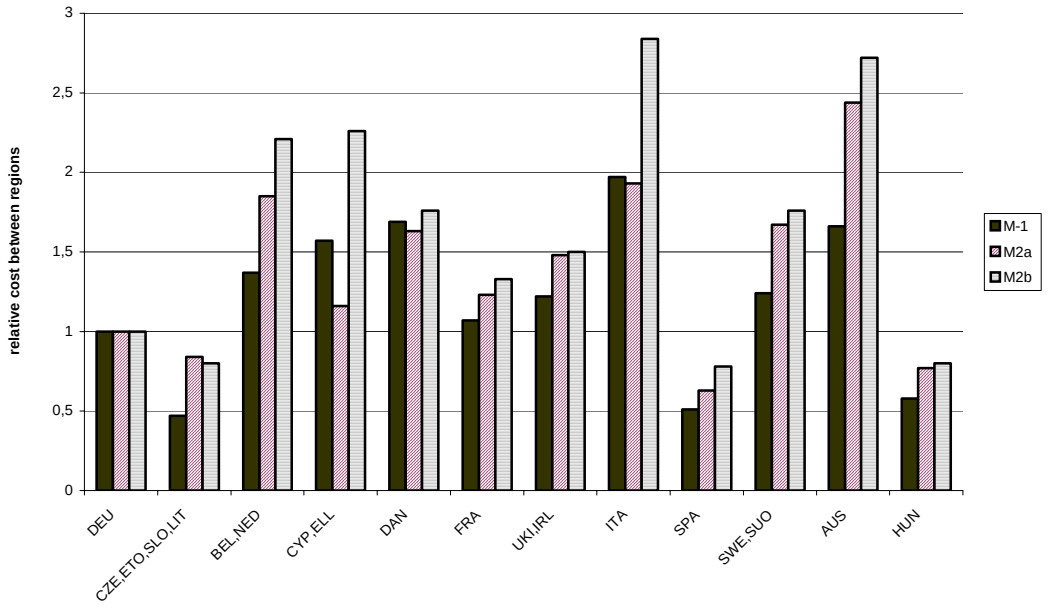


Figure 4 above gives an overview of the coefficients with which German data should be multiplied. The suggestion is to use the result from Model 2a in regions where only a minor difference between the results appears. For other regions, where the result varies a lot with the estimation method, we should use the Model 1 estimate until we get a better model that explains some of the variation within the region.

4.2 Variable costs

Grete Stokstad

FSSIM requires variable costs specified by crop rotation element and by production practice. This section introduces a statistical method for deriving these variable costs from FADN data. The original motivation was to use the method to reduce the workload for the surveys. Later, the method appeared as a possibility to ensure the statistical representativeness of the variable costs collected with the surveys.

The FADN provides variable costs divided into the following cost groups

- seeds and plants:
  - seeds and seedlings purchased,
  - seeds home grown,
- fertilizer and soil improvements,
- crop protection products,
- other crop-specific inputs.

These cost variables are available for individual crops aggregated over all farms belonging to a particular farm type (average data). The data allow for the calculation of average values per farm or hectare for a certain farm type, but **not for deriving variable costs for different production practices embedded in different crop rotations,** because the FADN data consider neither different production practices, nor rotational aspects.

The challenge therefore is that there are multiple possible ways to assign the summed FADN costs to alternative FSSIM activities especially since a crop may be grown as part of a multitude of possible rotations/activities. Thus the goal is to find a good estimate for the variable costs of a **particular** rotation (= activity in FSSIM) within a certain region rather than the costs of a typical crop rotation.

Assigning the summed FADN variables (mainly costs) to the CA requires three types of information:

1. the main activities observed in a region/FADN data sample,
2. the relative size of these activities in terms of area and,
3. the relative costs of one activity in relation to other activities (depending on e.g. use of fertilizers, labour required etc.).

The extraction of data from FADN for CA covers two steps:

1) Determining the share of CA being represented by FADN-data (that may have different cost structures):

   Here we operate with two alternatives:

   a) Direct identification of activities and their relative importance in a region: The expert determines crop rotations and the share of the alternative rotations directly as part of the computer-assisted survey (see 4.2.1).

   b) The expert is asked about some general insights regarding the importance of alternative activities and the share of the rotations are afterwards determined by a linear optimisation procedure (see 4.2.2).

2) Disaggregating the average cost of the activities (=rotations) to the single crops they comprise of (see 4.2.3).

4.2.1 Direct identification of activity shares by experts

The activities (= crop rotations) and their relative scale/size can be directly defined by the experts as part of the computer-based survey. A table with the crops grown in a region is shown to the expert (see Figure 5). The rows of the table include crops grown in the region, its columns include different activities (= crop rotations). Those crops that appear as default crops in this list are the most important ones in a certain region with respect to covered area and their total monetary value of sales-crop according to the FADN.

The idea is to let the "expert" relate the importance of the observed rotations in a region to the relative distribution of crops according to the FADN. See Figure 5 for an illustration, of the suggested information in this screen. The coefficients in the crop i/activity j table (denoted r_{ij}) in Figure 5 denote which crop appears in which rotation. A coefficient of 1 (or integer) means that a certain crop is in use, otherwise the table has no entry 0/blank, e.g. activity 1 comprises of crop 1 and 3. Monocultures also have to be included as rotations (cf. activity 3). The values of the coefficients indicate *how often* a certain crop appears in the rotation (e.g. a value of 2 would indicate that a crop is (has been) grown (for) 2 years in a rotation). The sum of each column ($years_j$) shows the duration of each rotation. The experts may edit the occurrence of a crop in an activity.

Figure 5: Example of a screen where experts can experiment with the relative size of activities

	Activity 1	Activity 2	Activity 3	% of area per crop i	FADN
Crop 1	1	1		31	50
Crop 2			1	30	20
Crop 3	1	1		31	20
Crop 4		1		7	10
$Years_j$	2	3	1	100	100
% of area in rotation j	48	22	30	100	

The expert is also supposed to fill in the percentage of each rotation in his region. By adjusting "% of area in rotation", the column "% of area per crop" is adapted automatically. (Both "% of area in rotation" and "% of area in crop" have to sum to 100.). The expert can compare his suggested area distribution with the observed FADN-area. (A perfect match is not necessary). By varying the values for "% of area in rotation j", the user may relate his values to observed FADN values. If the expert suggestions result in a quite close match to the FADN shares, a goal programming procedure as described in 4.2.2 will not be necessary.

Calculation of percentage of area of crop 1

$$\%\ \text{of area crop}_i = \sum (\%\ \text{of area in rotation}_j/\text{years}_j)*r_{ij}$$

$$= (48/2)*1 + (22/3)*1 + (30/1)*0 = 31.13$$

4.2.2 Goal programming to suggest activity shares

If varying the activity shares does not lead to sufficient results with the effect that the experts' crop shares differ too much from the FADN crop shares, an alternative method, goal programming can be used (for a general description see Moore and Weatherford, 2001). Instead of providing the exact shares of the various rotations, this method utilizes more fragmented information about the relative importance of activities.

In a first step, the share of each crop in the rotation/activity has to be identified, as illustrated in Figure 6. This chart shows a new table computed by means of the crop and activity table in Figure 5. Its parameters represent the frequency of crop i in rotation j, denoted as a_{ij}. In order to create the share of crop 1 in rotation 1 divide the cells r_{ij} (1 and 0 in Figure 5) by the sum of each column, the length of rotation in years. The resulting values are crop shares a_{ij}.

Figure 6: Illustration of the matrix structure

	Activity 1	Activity 2	Activity 3
Crop 1	0,5	0,33	
Crop 2			1
Crop 3	0,5	0,33	
Crop 4		0,33	

Matrix A (with values a_{ij})

$FADN_j$
50
20
20
10

The FADN data provide a list of crops with the area (or relative area) covered by each crop, which correspond to the row names in Figure 5 and Figure 6. This vector is denoted FADN. We do not necessarily need a complete list of all possible activities, as we are merely interested in identifying the share of rotations where the variable costs (or what one is looking at) are expected to differ depending on the activity.

If the true area of each activity is known and multiplied with each row in A, the sum of these products should be identical to the area of each crop according to the FADN, x representing the row vector with the share of current activities:

$$Ax = FADN$$

(This assumes that the exact shares of crops grown each year in a certain rotation are known). The task is to identify x, or to find values for x that are sufficiently close. Solving this problem might be impossible. However, by allowing one monoculture for each crop, we make sure that there are several possible values for each activity that could produce the observed crop combinations. A common outcome if we allow for some monocultures (unexplained deviations), is that we have too many possible solutions. In order to ensure that our finally chosen value for x is realistic, we will have to use expert estimates regarding the share/relative share of various activities.

Expert advice (in most cases) can be expressed in the form of linear equations. For example, a local expert could give the statement that barley (x_1) as monoculture makes less than 10 percent of the total area in a region. As an equation, this statement looks like:

$$x_1 < \text{Total area} * 0.1$$

Another statement could be: The area for activity 2 (x_2) is at least twice as big as activity 3 (x_3). This gives:

$$2x_2 - x_3 > 0$$

We need such a mathematical representation of information about the size of a rotation for matrix D, which is a table with the same rows as matrix A. Each row is supposed to tell something about the size or relative sizes of some activities. Column vector d is constant in these equations (0 or a figure).

$$D\,x = d$$

Also including slack variables, for all/most of the rows in A and D we may solve the set of equations to find values for x by minimizing the sum of weighted slacks (goal programming). This opens up for the possibility to put more or less emphasis on different types of information.

Information expressed in D should be collected in the course of the survey. Thus, if the expert is not comfortable by suggesting percentages directly for the activities in his region, he may come

with more fragmented information. This can be written statements as expressed in column one of Table 8 below, or a table that identifies involved activities with target, minimum, maximum or interval (min+max).

Table 8: Example of expert advice

Expression	Translated to an activity relationship	Target	Min/greater than	Max/less tan
Activity 2 is about 30%	Activity 2	30		
Activity3+4 make up maximum 20 %.	Activity 3+Activity4			20
Activity 1 and 2 are of the same size	Activity1-Activity2	0		
Activity 1 is twice as large as any other activity with wheat	Activity 3 -2*(each of the other with wheat)		0	

The linear program is designed as a goal program for two main reasons:

- The problem will always have at least one solution.
- Reducing the problem by always choosing max or min values, when a value in the middle of max and min is, is at least as appropriate as the max and min valueas such. This is done by including slacks that creates more "corners" to choose among.

In addition, the cost of using these slacks can also be used to express relative preferences for reaching targets (ranking of the expert advice).

Appendix C includes a further description of the LP-Programme. The main point here is to show the type of data that is necessary facilitates determination of the size of possible current activities.

4.2.3 Extracting crop-specific variable costs from FADN data

In order to relate variable costs of the FADN to the (relevant) crops the activities are comprised of (referred to as alternative 4 regarding TCG), we need the expected relative costs associated with each crop within a particular activity. This results in a table with the same dimensions as matrix A. All cells where matrix A is blank/zero are zero as well. We denote the elements in this matrix as VC_{ij}.

Information about the VC_{ij} has to be collected from the description of the respective activity (for example expected seed use * price of seed). Thus, such information needs to be available when an activity is defined.

The area of crop i in activity j equals $a_{ij*}x_j$. (x_j still refers to the share or area used by activity j.)

The aggregated/average expected variable costs for crop i for a certain farm type are calculated as follows:

$$\sum_j VC_{ij}\, a_{ij}\, x_j$$

To get the total variable costs for a farm type, we have to sum over all crops:

$$\sum_i \sum_j VC_{ij}\, a_{ij}\, x_j$$

In turn, the total variable costs from the FADN (VC-FADN) can be interpreted as:

$$\text{VC-FADN} = K * \sum_i \sum_j VC_{ij}\, a_{ij}\, x_j$$

Here, K is the only unknown parameter. By calculating the value of K we may determine the necessary adjustment to adapt expected values to observed values.

Thus variable costs of crop i in rotation j are calculated:

$$K^* VC_{ij}$$

Now, K is a constant for a particular region or farm type in a region.

In principle, this adjustment is feasible anywhere (for each region). It may also be part of the data processing in combination with the presentation of data from the survey. One crucial point is to find a relevant representation of the relative costs. Initially, this will have to be data from the survey or cost calculations related to the survey. However, when the technical coefficient generator works we may use calculated costs based on activity descriptions to come up with the coefficients for VC_{ij}. The survey will only ask for the general crop rotations in the investigated regions, which corresponds to the sum of several farm types in a region. Thus, the activity shares will also relate to the total use of area. This implies that it is the sum of variable costs over all farm types that needs to be divided between crops and not the variable cost for one farm type. This results in a new challenge regarding the FADN data: to identify farm type specific costs. One approach could be to calculate crop specific average costs, and see whether differences in crop combinations are sufficient to explain differences in FADN-costs between types of farms. Otherwise, VC_j have to be adjusted for each farm type. Dealing with regional data regarding activities instead of farm-type data is a new issue (discussed in Berlin 13-14 December). However, we need to look closer at this to utilize more of the information we have by considering both costs and crop data divided on various farm types. If we ignore this totally, costs will not depend on farm types. Instead, they will only be a function of rotation/activity on a farm.

General comments:

One should keep in mind that the most crucial points are probably

- to define the relative cost share among general crops in the region and
- to identify activities where one or some of the crops have cost values that differ from "normal" relative crop costs.

Therefore, we may sometimes simplify with respect to the regarded activities. In certain cases, "monocultures" may represent several potential activities where less important crops are involved.

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Glossary

AA	Alternative Activities: simulated activities (by APES), not currently practiced, but possible solutions for the future in adaptation to e.g., climate change
APES	Agricultural Production and Externalities Simulator
CA	Current Activities: Agricultural activities that are currently practiced in a certain region and can be derived from observed data or expert knowledge.
FADN	Farm Accountancy Data Network: An instrument for evaluating the income of agricultural holdings and the impacts of the Common Agricultural Policy. The concept of the FADN was launched in 1965, when Council Regulation 79/65 established the legal basis for the organisation of the network. It consists of an annual survey carried out by the Member States of the European Union. The services responsible in the Union for the operation of the FADN collect every year accountancy data from a sample of the agricultural holdings in the European Union. Derived from national surveys, the FADN is the only source of micro-economic data that is harmonised, i.e. the bookkeeping principles are the same in all countries. Holdings are selected to take part in the survey based on sampling plans established at the level of each region in the Union. The survey does not cover all the agricultural holdings in the Union but only those that could be considered commercial due to their size. The methodology applied aims to provide representative data along three dimensions: region, economic size and type of farming. While the European Commission is the primary user of analyses based on FADN-data, aggregated data can be found in the Standard Results database.
FSSIM	Farm System Simulator

Appendix A: FADN data

Example: FADN data about crops, production and value for crop farms in Flevoland
The information about the area used for each crop according to the FADN (or other sources) will be used to limit the set of common current activities that have to be defined for a region. Not all crop types are grown in a region and many of the existing are grown on a comparatively small area. Some of the FADN crop groups may include a diverse type of crops with respect to costs and value. For example, "field scale fresh vegetables" is a very wide group of vegetables.

Figure 9 shows that most of the area is used for potatoes, common wheat, sugar beet and field scale fresh vegetables. (The crop groups are sorted by total area used for each crops or group of crops). On the large, high intensity arable farms, potatoes and field scale vegetables cover 50 % of the area. Potatoes are the most common crop on large farms, while on small high-intensity farms field scale fresh vegetables areas are more frequent. On large medium-intensity farms also barely and grass seeds are common.

Thus, the information about the different farm types, in addition to the average values for the region may be helpful for suggesting typical crop rotations. For example, the crop shares for large medium-intensity farms also suggest that we need to include a current activity with barely in order to reproduce the production on such farms.

Table 9 is important for identifying major crops that characterize the landscape. However, farm existence is also dependent on a sufficient income. The product value is not necessarily a good indicator of profitability, but at least it sets some upper level on the sum of total economic activity (costs).

Table 10 shows the income in Euro per hectare, overall average value per hectare and average value for the various farm types. One should notice that the area for some crops is very small. With large differences in income per hectare, we suggest to include current activities to be able to reproduce similar differences in average income. For several of the crops we also have information about total yield. This could give additional information about whether such production value differences are due to quality differences or yield differences.

With this large variation in value per hectare, the ranking of importance of crops differs when we rank crops according to total income from crops. Table 11 illustrates this.

Potato keeps its rank and is the largest income generator. Common wheat is much less important than the area suggests. Mushrooms, a minor crop with respect to area, and only for medium high intensity farms, are among the main sources of crop income of this farm type. Field scale fresh vegetables remain among the most important crops.

Farm type medium size, high intensity make up 7 percent of the area, but account for 31 % of the value of crops. This is mainly due to the higher income from field scale vegetables and the income from mushroom production.

Table 9: Percentage of area by crop for specialized arable farms (Flevoland, The Netherlands)

% area Netherlands-Flevoland Arable/Specialised crops	Flevoland Area	Large High intensity	Large Medium intensity	Medium High intensity
Potatoes	29 %	33 %	25 %	16 %
Common Wheat	15 %	16 %	14 %	12 %
Sugar Beet	14 %	12 %	17 %	14 %
Field scale fresh vegetables	13 %	17 %	5 %	20 %
Barley	5 %	3 %	10 %	5 %
Land ready for sowing	4 %	3 %	6 %	7 %
Grass seeds	4 %	4 %	5 %	1 %
Meadows and permanent pastures	2 %	2 %	4 %	3 %
Fallow and set aside	2 %	2 %	3 %	3 %
Other industrial crops	2 %	1 %	3 %	3 %
Other fodder plants	2 %	1 %	3 %	5 %
Dry pulses	1 %	1 %	1 %	0 %
Fresh vegetables in the open	1 %	1 %	1 %	0 %
Grain maize	1 %	0 %	0 %	4 %
Peas, field beans and sweet lupines	1 %	1 %	1 %	0 %
Flowers in the open	1 %	1 %	0 %	0 %
Fruit and berry orchards	1 %	0 %	1 %	0 %
Oats	0 %	1 %	0 %	0 %
Mushrooms	0 %	0 %	0 %	6 %
Other protein crops	0 %	0 %	1 %	0 %
Other seeds	0 %	0 %	0 %	0 %
Rye	0 %	0 %	0 %	0 %
Other cereals	0 %	0 %	0 %	1 %
Oil seeds	0 %	0 %	0 %	0 %
Other oilseeds	0 %	0 %	0 %	0 %
Temporary grass	0 %	0 %	0 %	0 %
Other arable crops	0 %	0 %	0 %	0 %
Flowers under shelter	0 %	0 %	0 %	0 %
Fresh vegetables under shelter	0 %	0 %	0 %	0 %
Fodder Roots	0 %	0 %	0 %	0 %
Share of total land per farm type	100 %	61 %	32 %	7 %

Data source: FADN

Table 10: Average income from crop production in Euro/ha averaged for the various crops within three farm types

The Netherlands-Flevoland Arable/Specialised crops	Average Euro/ha	Large high-intensity	Large medium-intensity	Medium high-intensity
Potatoes	5136	6142	2476	5429
Common Wheat	1203	1234	1148	1137
Sugar Beet	3216	3450	2974	2774
Field scale fresh vegetables	8092	7824	3180	14677
Barley	847	891	847	661
Land ready for sowing	2173	3496	1235	733
Grass seeds	1444	1524	1313	1510
Meadows and permanent pastures	81	102	16	332
Fallow and set aside	0	0	0	0
Other industrial crops	9540	15243	1874	21233
Other fodder plants	789	999	849	323
Dry pulses	7644	9545	4301	
Fresh vegetables in the open	5520	6198	2958	
Grain maize	984	886	877	1099
Peas, field beans and sweet lupines	1875	2033	1559	
Flowers in the open	17786	19560	11934	
Fruit and berry orchards	10341	23850	1549	
Oats	770	787	715	
Mushrooms	272230			272230
Other protein crops	1417	908	1879	
Other seeds	3404	4237	2064	
Rye	578	896	575	
Other cereals	1322		1994	638
Oil seeds	435		435	
Other oilseeds	435		435	
Temporary grass	241	295	0	
Other arable crops	618	618		
Flowers under shelter	10502		2572	153625
Fresh vegetables under shelter	127358	127358		
Fodder Roots	473		473	

Data source: FADN

Table 11: Percentage of total income from the various crops, average value and values per farm type of arable/specialised crops, Flevoland

% total value The Netherlands-Flevoland Arable/Specialised crops	% of total product value	Large high intensity	Large medium intensity	Medium high intensity	Product value in Euro
Potatoes	28,8 %	42 %	32 %	4 %	631 237 638
Mushrooms	23,9 %	0 %	0 %	77 %	523 770 890
Field scale fresh vegetables	20,7 %	27 %	8 %	13 %	452 404 177
Sugar Beet	8,5 %	9 %	26 %	2 %	186 086 859
Other industrial crops	3,5 %	4 %	3 %	2 %	77 182 540
Common Wheat	3,4 %	4 %	8 %	1 %	75 563 448
Land ready for sowing	1,8 %	2 %	4 %	0 %	40 357 096
Flowers in the open	1,7 %	3 %	2 %	0 %	37 932 142
Dry pulses	1,4 %	2 %	3 %	0 %	30 106 121
Grass seeds	1,2 %	1 %	4 %	0 %	26 311 740
Lentils, chick peas and vetches	1,1 %	1 %	2 %	0 %	23 545 910
Fruit and berry orchards	1,0 %	2 %	1 %	0 %	21 760 473
Barley	0,9 %	0 %	5 %	0 %	18 861 694
Fresh vegetables in the open	0,8 %	1 %	1 %	0 %	18 312 212
Other fodder plants	0,3 %	0 %	1 %	0 %	5 912 417
Fresh vegetables under shelter	0,2 %	0 %	0 %	0 %	4 106 012
Peas, field beans and sweet lupines	0,2 %	0 %	0 %	0 %	4 004 887
Other seeds	0,1 %	0 %	0 %	0 %	3 028 193
Grain maize	0,1 %	0 %	0 %	0 %	2 717 367
Other protein crops	0,1 %	0 %	1 %	0 %	2 555 280
Oats	0,1 %	0 %	0 %	0 %	1 528 155
Meadows and permanent pastures	0,0 %	0 %	0 %	0 %	790 229
Growth of young plantations	0,0 %	0 %	0 %	0 %	604 930
Other cereals	0,0 %	0 %	0 %	0 %	574 999
Flowers under shelter	0,0 %	0 %	0 %	0 %	492 821
Rye	0,0 %	0 %	0 %	0 %	336 096
Oil seeds	0,0 %	0 %	0 %	0 %	165 044
Other oilseeds	0,0 %	0 %	0 %	0 %	165 044
Other arable crops	0,0 %	0 %	0 %	0 %	149 266
Temporary grass	0,0 %	0 %	0 %	0 %	76 103
Fodder Roots	0,0 %	0 %	0 %	0 %	8 953
Share of total value per farm type	100%	57 %	12 %	31 %	

Data source: FADN

For most crops, we also know the total production in tons. We may therefore also calculate a value per ton or per hectare. Table 12 shows the value per ton (price) and the yield per hectare for the arable farms in Flevoland.

There are relatively small differences between the potato yield and the yield of field scale vegetables. However, the price varies between the crops. This may be due to different products and or packaging (or an error).

Table 12: Price per ton, yield per hectare and total hectares for the three farm types

	Price euro/ton			Yield Ton/ha			Area- hectares		
Crops-Flevoland	Large high i.	Large med.i.	Med high i.	Large high i.	Large med.i.	Med high i.	Large high i.	Large med.i.	Med High i.
Potatoes	173	68	130	35,5	36,6	41,9	85 195	32 739	4 959
Common Wheat	145	133	183	8,5	8,6	6,2	40 759	18 352	3 704
Sugar Beet	54	51	48	64,2	57,8	57,3	31 365	22 035	4 454
Field scale fresh vegetables	258	113	516	30,3	28,1	28,4	43 565	6 055	6 289
Barley	131	122	120	6,8	7,0	5,5	6 790	13 942	1 524
Grass seeds	843	878	819	1,8	1,5	1,8	11 051	6 940	237
Other industrial crops	752	203	1003	20,3	9,2	21,2	3 524	3 796	770
Dry pulses	1047	1228		9,1	3,5		2 282	1 656	0
Fresh vegetables in the open	241			25,7			2 623	694	0
Grain maize	84		121	10,5	0,0	9,1	992	485	1 286
Peas, field beans and sweet lupins	289	324		7,0	4,8		1 425	710	0
Fruit and berry orchards		460			3,4		830	1 275	0
Oats	136	113		5,8	6,3		1 524	461	0
Other protein crops	72	745		12,6	2,5		857	946	0
Other seeds	12000	3137		0,4	0,7		549	341	0
Rye	107	108		8,4	5,3		5	576	0
Other cereals		3323	153		0,6	4,2	0	219	216
Oil seeds		218			2,0		0	379	0
Other oilseeds		218			2,0		0	379	0
Other arable crops	67			9,2			241	0	0
Fresh vegetables under shelter	18			7198,8			32	0	0

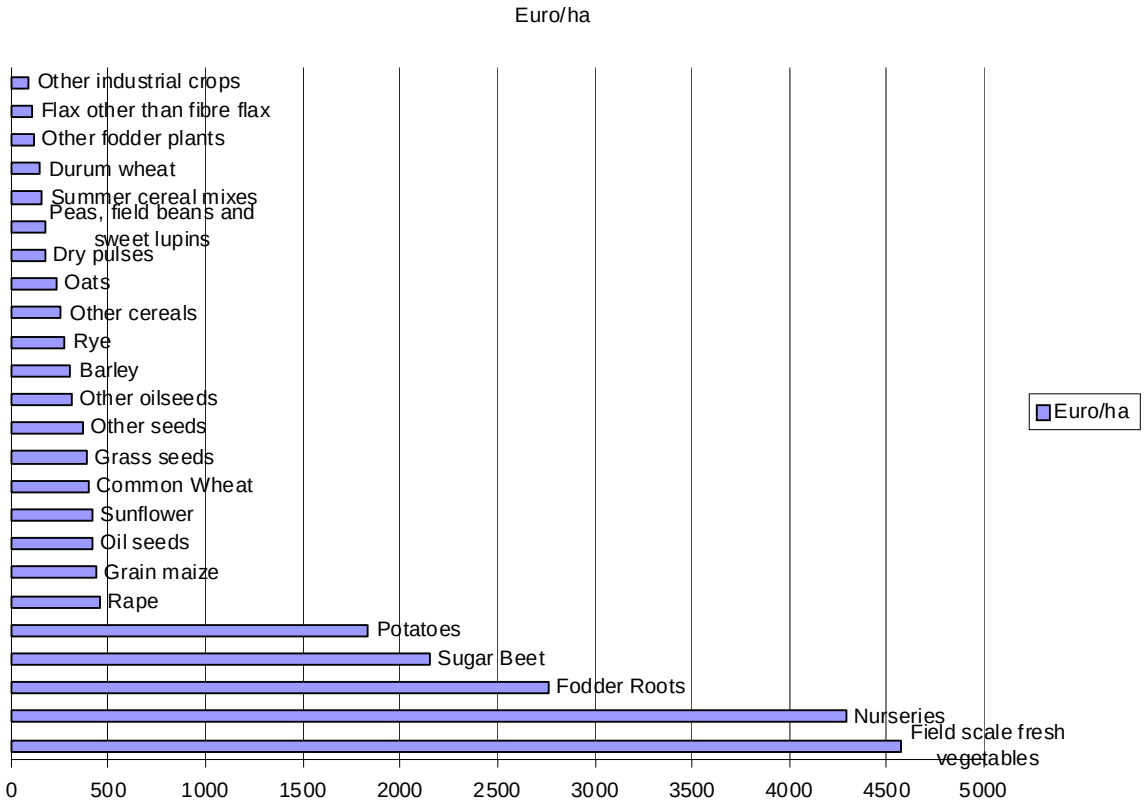
Data source: FADN

The average yield (and possibly the average price) may be used to help to decide on the share of various types of activities that include the same type of FADN-crop.

Example: Average values for five farm types in Brandenburg (FADN-data)

Figure 7 illustrates the value of crops per hectare in Brandenburg. This average includes several types of farms.

Figure 7: Revenues per crop and hectare, average data for Brandenburg (Source: FADN)



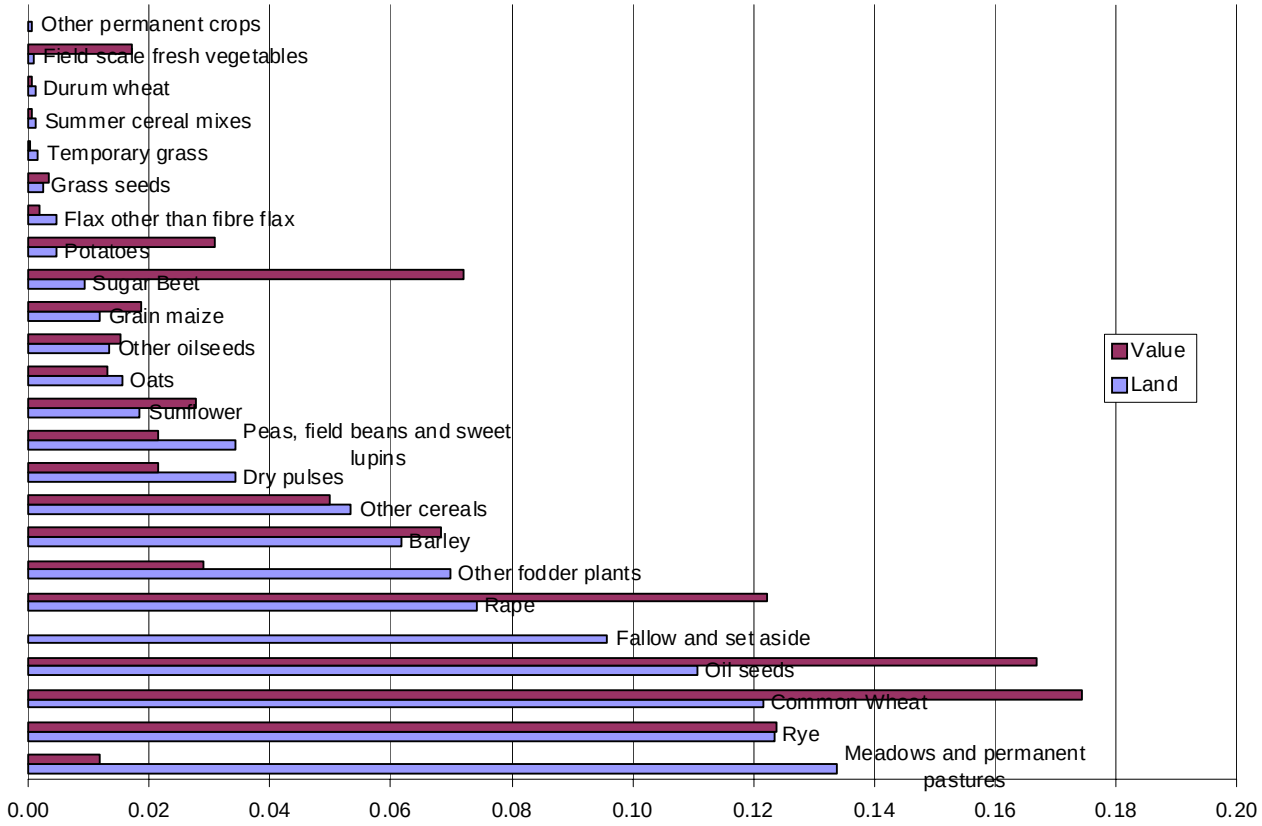
This chart illustrates that crops as potatoes, sugar beets, fodder roots, field scale vegetables and nurseries result in a high income per hectare compared to most other common crops. As a result, the same crops may be more important for the farm than the respective area suggests.

In ***Figure 8***Figure 8 the blue bars show the relative share of area used for the various crop types (denoted "Land"), while the red bars show the relative share of income from particular crops (denoted "Value").

Meadows and permanent pastures are quite important for the landscape, but the value of these crops reported in the FADN-data are small.

When choosing which crops to include, both product value and area is interesting to consider. We may choose (more or less arbitrarily) a cut-off value for share of income and share of area in order to limit the crops to be included in the "common" current activities. A chart like Figure 8 will also help to determine how reasonable such a cut-off share is with respect to both share of area and share of value.

Figure 8: Share of total crop value that originates from the various crop types (Value) and share of area with the various crops (Land), Source: FADN



Appendix B: Current activity data

Table 13: Data requirements for the definition of CAs

FSSIM per farm type and orientation									
Variable name	**Description**	**SET dependence**	**Gams_ Type**	**Native type**	**Default value**	**min**	**max**	**unit**	**Source**
C	Crop		set	char					
S	Soil type		set	char					
R	Rotation (i.e. production enterprise)		set	char					
RFAL	rotation with fallow		set	char					
T	Production technique (complete set of agronomic inputs (e.g. management practices) characterized by type, level, timing and application technique		set	char					
SYS	Production orientation (Value driven aims and restrictions of the agricultural activity that direct the input and output levels)		set	char					
P	Period (year)		set	char					
PRD	Products (marketable products and others)		set	char					
NAT	States of nature of risk analysis		set	char					
i	Agricultural activity (e.g. crop rotation activity defined under R, T, P, SYS)		set	char					

Required data for farm structure									
LANDAV	Land availability per soil type	(S)	Parameter					ha	
IRR	Part of irrigated land per soil type	(S)	Parameter					ha	
WATERMAX	Water availability		Parameter					m3/year	
LF	Family labour availability		Parameter					h	
Required data for agricultural activities									
LACRO	Labour requirements for each crop rotation activity	(R,T,P,SYS)	Parameter					h/ha	
WATC	Water requirement for each crop rotation activity	(S,R,T,P,SYS)	Parameter					m3/ha	
N	N requirement for each crop rotation activity	(S,R,T,P,SYS)	Parameter					kg/ha	
COSTS	Variable costs of each crop rotation	(S,R,T,P,SYS)	Parameter						
YIELD	Average yield of each crop rotation activity	(S,R,PRD,T,P,SYS)	Parameter					t/ha	
POLL	Pollution of each crop rotation activity	(S,R,T,P,S,SYS)	Parameter					kg/ha	
PRESPHY	Chemical pressure of each crop rotation activity	(S,R,T,SYS)	Parameter						
PRICE	Producer price of each product	(PRD)	Parameter					€/t	
VARI	Maximum price variability	(PRD)	Parameter					%	
PRICEF	Price inputs with assumption of linearity between N-used and other inputs		Parameter					€/ha	
PN	Nitrogen price		Parameter					€/kg	
PW	Water price		Parameter					€/m3	
PSAL	Labour costs		Parameter					€/h	
DIRAID	Direct payment for each drop	(C)	Parameter					€/ha	

COP	Coupling degree for each crop	(C)	Parameter					%	
PAYEN	Single farm payment based on historic payment from 2000-2002 (eligible crop)		Parameter					€/ha	
PAYFAL	Single farm payment based on historic payment from 2000-2002 (fallow)		Parameter						
NR	Number of periods within each rotation	(R)	Parameter						
Required data for FSSIM calibration process									
PHI	Risk aversion coefficient								
LEVL	Observed crop pattern	(S,C,T,SYS)							
PRODT	Observed production level	(PRD)							
Z	Observed farm revenue								

APES data requirements: Many of the variables listed here will now be provided by expert based management rules.

APES									
Variable name	**Description**	**dependence**	**varType**	**nativeType**	**defaultValue**	**min**	**max**	**unit**	**Source**
operationRelativeDate	Timing (window) of sowing	sowingManagement							
firstMeasure		conservationManagement							
operationRelativeDate	Timing (window) of tillage etc.	conservationManagement							
tillageDepth		conservationManagement							
tillageType	Type of machine	conservationManagement							
"n"Measure		conservationManagement							
firstMeasure		nutrientManagement							
operationRelativeDate		nutrientManagement							
fertilizerApplicationMethod		nutrientManagement							
fertilizerNH4Nrate	Amount of ammonium	nutrientManagement							
fertilizerNO3Nrate	Amount of nitrate	nutrientManagement							
"n"Measure		nutrientManagement							
operationRelativeDate	Timing (window) of irrigation	waterManagement							
waterRate		waterManagement							
firstMeasure		weedManagement							
operationRelativeDate	Timing (window) of measure	weedManagement							
weedChemicalControl		weedManagement							
cropProtectionChemicalName	Active chemical	weedManagement							
cropProtectionChemicalRate	Amount of active chemical	weedManagement							
"n"Measure		weedManagement							
operationRelativeDate	Timing (window) of measure	harvestingManagement							
averageYield		harvestingManagement							
rangeYield									
rotationID									
rotationLength									
cropYear1									expert
cropYear2									expert
cropYear"n"									expert

Appendix C: SEAMLESS products

crop	botanical name	product type	product
Alfalfa	Medicago sativa	Fodder	Alfalfa - Fodder
Almond	Prunus dulcis	Ware	Almond - Ware
Annual crops, other	UNSPECIFIED	Ware	Annual crops, other - Ware
Apple	Malus sylvestris	Fruit	Apple - Fruit
Asparagus	Asparagus officinalis	Root	Asparagus - Root
Banana	Musa paradisiaca	Fruit	Banana - Fruit
Barley, spring	Hordeum vulgare	Grain	Barley, spring - Grain
Barley, spring	Hordeum vulgare	Seed	Barley, spring - Seed
Barley, spring	Hordeum vulgare	Fodder	Barley, spring - Fodder
Barley, winter	Hordeum vulgare	Fodder	Barley, winter - Fodder
Barley, winter	Hordeum vulgare	Grain	Barley, winter - Grain
Barley, winter	Hordeum vulgare	Seed	Barley, winter - Seed
Bastard Saffron	Crocus sativus	Leaf	Bastard Saffron - Leaf
Bean	Phaseolus vulgaris	Grain	Bean - Grain
Bean	Phaseolus vulgaris	Seed	Bean - Seed
Beet and Turnip	Beta vulgaris	Fodder	Beet and Turnip - Fodder
Beet and Turnip	Beta vulgaris	Root	Beet and Turnip - Root
Beet, sugar	Beta vulgaris var. altissima	Grain	sugar beet (summer crop) root,tuber=>standard [conventional] (11)
Beet, sugar	Beta vulgaris var. altissima	Root	sugar beet (summer crop)
Beet, sugar	Beta vulgaris var. altissima	Sugar	Beet, sugar- Sugar
Beet, sugar	Beta vulgaris var. altissima	Seed	Beet, sugar- Seed
Beet, sugar	Beta vulgaris var. altissima	Fodder	Beet, sugar - Fodder
Berry and currants (all varieties)	Rubus spp. and Ribes spp. and Vaccinium spp.	Fruit	Berry (all varieties) - Fruit
Bittertomato	Solanum aethiopicum	Fruit	Bitter tomato - Fruit
Broad bean	Vicia faba	Grain	Broad bean - Grain
Broad bean	Vicia faba	Fodder	Broad bean - Fodder
Broad bean	Vicia faba	Seed	Broad bean - Seed
Buckwheat	Fagopyrum esculentum	Fodder	Buckwheat - Fodder
Buckwheat	Fagopyrum esculentum	Seed	Buckwheat - Seed
Buckwheat	Fagopyrum esculentum	Grain	Buckwheat - Grain
Cabbage	Brassica spp.	Ware	Cabbage - Ware
Carrot	Daucus carota ssp. sativa	Root	Carrot - Root
Cauliflower	Brassica oleracea var. botrytis	Ware	Cauliflower - Ware
Cereal, other	UNSPECIFIED	Grain	Cereal, other - Grain
Cereal, other	UNSPECIFIED	Fodder	Cereal, other - Fodder
Cherry (all varieties)	Prunus spp.	Fruit	Cherry (all varieties) - Fruit
Chestnut	Castanea sativa	Ware	Chestnut - Ware
Chick pea	Cicer arietinum	Grain	Chickpea - Grain
Chicory	Cichorium intybus	Ware	Chicory - Ware
Citron	Citrus limon	Fruit	Citron - Fruit
Citrus fruit, other	UNSPECIFIED	Fruit	Citrus fruit, other - Fruit
Clover (all varieties)	Trifolium spp.	Fresh	Clover (all varieties) - Fresh
Cocoa	Theobroma cacao	Ware	Cocoa - Ware
Coffee	Coffea spp.	Ware	Coffee - Ware
Cotton	Gossypium spp.	Fibre	Cotton (all varieties) - Fibre
Cow pea	Vigna unguiculata	Grain	Cowpea - Grain
Cow pea	Vigna unguiculata	Seed	Cowpea - Seed
Cucumber	Cucumis sativus	Ware	Cucumber - Ware
Durum wheat, spring	Triticum durum	Seed	Durum wheat, spring - Seed
Durum wheat, spring	Triticum durum	Grain	Durum wheat, spring - Grain
Durum wheat, winter	Triticum durum	Grain	Durum wheat, winter - Grain
Durum wheat, winter	Triticum durum	Seed	Durum wheat, winter - Seed
Eggplant	Solanum melongena	Fruit	Eggplant - Fruit

Fallow Land	FALLOW	unspecified	Fallow Land
Fescue	Festuca spp.	Fresh	Fescue - Fresh
Fig	Ficus carica	Fruit	Fig - Fruit
Flax	Linum usitatissimum	Fibre	Flax - Fibre
Fodder root crop, other	UNSPECIFIED	Fodder	Fodder root crop, other - Fodder
Fonio	Digitaria exilis	Grain	Fonio - Grain
Fruits, other	UNSPECIFIED	Fruit	Fruits, other - Fruit
Garlic	Allium sativum	Root	Garlic - Root
Grape, table	Vitis vinifera	Fruit	Grape, table - Fruit
Grape, wine	Vitis vinifera	Fruit	Grape, wine - Fruit
Grass ley, one year	GRASSLAND	Hay	Grass ley, one year - Hay
Grass ley, one year	GRASSLAND	Fresh	Grass ley, one year - Fresh
Grass ley, one year	GRASSLAND	Silage	Grass ley, one year - Silage
Grass ley, one year	GRASSLAND	Seed	Grass ley, one year - Seed
Grass, permanent pasture	GRASSLAND	Silage	Grass, permanent pasture - Silage
Grass, permanent pasture	GRASSLAND	Hay	Grass, permanent pasture - Hay
Grass, permanent pasture	GRASSLAND	Fresh	Grass, permanent pasture - Fresh
Grass, temporary (less than four years)	GRASSLAND	Silage	Grass, temporary (less than four years) - Silage
Grass, temporary (less than four years)	GRASSLAND	Hay	Grass, temporary (less than four years) - Hay
Grass, temporary (less than four years)	GRASSLAND	Fresh	Grass, temporary (less than four years) - Fresh
Groundnut	Arachis hypogaea	Grain	Groundnut - Grain
Hemp	Cannabis sativa	Grain	Hemp - Grain
Hemp	Cannabis sativa	Fibre	Hemp - Fibre
Hop	Humulus lupulus	Grain	Hop - Grain
Isatis	Isatis spp.	Leaf	Isatis - Leaf
Isatis	Isatis spp.	Root	Isatis - Root
Kenaf	Hibiscus cannabinus	Fibre	Kenaf - Fibre
Kidney bean	Phaseolus vulgaris	Grain	Kidney bean - Grain
Kidney bean	Phaseolus vulgaris	Seed	Kidney bean - Seed
Lentil	Lens culinaris	Seed	Lentil - Seed
Lentil	Lens culinaris	Grain	Lentil - Grain
Lettuce	Lactuca sativa var. capitata	Ware	Lettuce - Ware
Lupin (all varieties)	Lupinus spp.	Grain	Lupine (all varieties) - Grain
Maize	Zea mays	Grain	Maize - Grain
Maize	Zea mays	Silage	Maize, Fodder - Silage
Maize	Zea mays	Seed	Maize - Seed
Maize, fodder	Zea mays	Fodder	Maize, Fodder - Fodder
Maize, pop corn	Zea mays convar. microsperma	Grain	Maize, pop corn - Grain
Maize, pop corn	Zea mays convar. microsperma	Seed	Maize, pop corn - Seed
Maize, sweet	Zea mays convar. saccharata	Seed	Maize, sweet - Seed
Maize, sweet	Zea mays convar. saccharata	Grain	Maize, sweet - Grain
Melon (all varieties)	Citrullus lanatus, Cucumis melo	Fruit	Melon (all variaties) - Fruit
Meslin	MIXTURE OF CEREALS	Fodder	Meslin - Fodder
Meslin	MIXTURE OF CEREALS	Seed	Meslin - Seed
Meslin	MIXTURE OF CEREALS	Grain	Meslin - Grain
Millet	Panicum miliaceum	Fodder	Millet - Fodder
Millet	Panicum miliaceum	Grain	Millet - Grain
Millet	Panicum miliaceum	Seed	Millet - Seed
Mushroom	Agaricus spp.; Pleurotus spp.; Volvariella	Ware	Mushroom - Ware
Mustard	Brassica alba	Grain	Mustard - Grain
Nut	Corylus avellana	Ware	Nut (all varieties) - Ware
Oat	Avena spp.	Grain	Oat - Grain
Oat	Avena spp.	Seed	Oat - Seed
Oat	Avena spp.	Fodder	Oat - Fodder
Oilseed, other	UNSPECIFIED	Grain	Oilseed, other - Grain
Olive, oil	Olea europaea	Fruit	Olive, oil - Fruit

Olive, table	Olea europaea	Fruit	Olive, table - Fruit
Onion	Allium cepa	Seed	Onion - Seed
Onion	Allium cepa	Root	Onion - Root
Orange	Citrus sinensis	Fruit	Orange - Fruit
Paprica	Capsicum spp.	Fruit	Paprica - Fruit
Peach	Prunus persica	Fruit	Peach - Fruit
Pear	Pyrus communis	Fruit	Pear - Fruit
Peas	Pisum sativum	Seed	Pea - Seed
Peas	Pisum sativum	Fodder	Pea - Fodder
Peas	Pisum sativum	Grain	Pea - Grain
Pea, sugar	Pisum sativum convar. axiphium	Grain	Pea, sugar - Grain
Plum	Prunus domestica	Fruit	Plum - Fruit
Potato	Solanum tuberosum	Grain	potato (summer crop)
Potato	Solanum tuberosum	Seed	Potato - Seed
Potato	Solanum tuberosum	Root	Potato - Root
Potato, sweet	Ipomoea batatas	Root	Potato, sweet - Root
Pulse, other	UNSPECIFIED	Grain	Pulse, other - Grain
Pumpkin	Cucurbita spp.	Ware	Pumpkin - Ware
Rape	Brassica napus	Grain	Rape - Grain
Rape	Brassica napus	Ware	rapeseed (winter crop) grain,seed
Rape	Brassica napus	Seed	Rape - Seed
Rice	Oryza sativa	Fodder	Rice - Fodder
Rice	Oryza sativa	Grain	Rice - Grain
Rice	Oryza sativa	Seed	Rice - Seed
Rye	Secale cereale	Seed	Rye - Seed
Rye	Secale cereale	Grain	Rye - Grain
Rye	Secale cereale	Fodder	Rye - Fodder
Serradella	Ornithopus sativus	Fresh	Serradella - Fresh
Soft wheat, spring	Triticum aestivum	Seed	Soft wheat, spring - Seed
Soft wheat, spring	Triticum aestivum	Grain	Soft wheat, spring - Grain
Soft wheat, winter	Triticum aestivum	Grain	Soft wheat, winter - Grain
Soft wheat, winter	Triticum aestivum	Seed	Soft wheat, winter - Seed
Sorghum	Sorghum vulgare	Fodder	Sorghum - Fodder
Sorghum	Sorghum vulgare	Seed	Sorghum - Seed
Sorghum	Sorghum vulgare	Grain	Sorghum - Grain
Sorghum, white	Sorghum bicolor	Seed	Sorghum, white - Seed
Sorghum, white	Sorghum bicolor	Grain	Sorghum, white - Grain
Sorghum, white	Sorghum bicolor	Fodder	Sorghum, white - Fodder
Soybean	Glycine max	Seed	Soybean - Seed
Soybean	Glycine max	Grain	Soybean - Grain
Spice and herb,annual	UNSPECIFIED	Ware	Spice and herb, annual - Ware
Spice and herb, perennial	UNSPECIFIED	Ware	Spice and herb, perennial - Ware
Strawberry	Fragaria spp.	Fruit	Strawberry - Fruit
Sunflower	Helianthus annuus	Ware	sunflower (winter crop) grain,seed=>oil [conventional] (753)
Sunflower	Helianthus annuus	Grain	Sunflower - Grain
Taro	Colocasia esculenta	Root	Taro - Root
Tea	Camellia sinensis	Leaf	Tea - Leaf
Tobacco	Nicotiana tabacum	Leaf	Tobacco - Leaf
Tomato	Lycopersicon esculentum	Fruit	Tomato - Fruit
Triticale	Hybrid of Triticum aestivum and Secale cereale	Fodder	Triticale - Fodder
Triticale	Hybrid of Triticum aestivum and Secale cereale	Grain	Triticale - Grain
Triticale	Hybrid of Triticum aestivum and Secale cereale	Seed	Triticale - Seed
Tulip	Tulipa spp.	Root	Tulip - Root
unspecified	UNSPECIFIED	unspecified	set-aside (winter crop) unspecified =>unspecified [conventional] (757)
unspecified	UNSPECIFIED	Grain	millet, pearl (bajra, bulrush) (summer crop) grain,seed=>standard

			[conventional] (142)
Vetch	Vicia sativa	Fresh	Vetch - Fresh
Yam	Dioscorea spp.	Root	Yams - Root

Appendix D: Calculating shares of current activities with an LP program

The objective of the program is to suggest the size of the potential current activities. The constraints in the LP program may be divided into three parts:

1. Observed area. The equations that limit the area of each crop based on matrix A (page) with a description of alternative activities and the FADN-data.
2. Perceived activity level. The equations that provide information about the size of the activities (matrix D and d).
3. Typology shares.

FADN crop area

The main idea is to make the area of each crop corresponding to the observed area according to the FADN:

$\sum_I a_{ij}x_j = FADN_i$

where a_{ij} refer to the elements ij in matrix A and $FADN_i$ to the area for crop i. Including this constraint directly as an equality constraint can be too strict.

An alternative way with more flexibility can be as:

1) $\sum_j x_j \geq \sum_i FADN_i$

2) $\sum_j a_{ij}x_j - z_i \leq FADN_i$ for all crops i

where the objective function minimizes the sum of the slack variables z_i.

A simpler version may also work, but here all overachievements of the crop target will always be treated as equally bad. The equations are:

1) $\sum_j x_j - Z \leq \sum_i FADN_i$

2) $\sum_j a_{ij}x_j \geq FADN_i$ for all crops i

where the objective function minimizes slack (Z). As long as Z turns out to be 0, we may use this version. Including enough "monocultures" will result in Z =0.

Activity Information

Information about the size of the activities is expressed as a set of r equations. The coefficients in these equations that are multiplied with corresponding j activities are named matrix D. Each element in D is denoted d_{rj}.

We have three alternative types of equations; for example, the sum of/ or some activities is equal 50, less than 50 or larger than 50:

$\sum_j d_{rj} x_j = target_r$, $\sum_j d_{rj} x_j \leq target_r$ or $\sum_j d_{rj} x_j \geq target_r$

However equation $\sum_j d_{rj} x_j = target_r$ can be expressed equally as $\sum_j d_{rj} x_j \leq target_r$ **and** $\sum_j d_{rj} x_j \geq target_r$.

In weighted goal programming, goals are expressed as constraints. We use deviation variables to allow for divergence from the goals. The objective function minimize deviations from these goals.

In general, four types of deviations:

1. Deviation from a target
2. Minimize underachievement (try to avoid being less than target)
3. Minimize overachievement (try to avoiding being larger than target)
4. Goal interval constraint (try to avoid being outside the interval (max- and min-target))

Deviation from a target and an interval is in principle a combined minimization of under- and overachievements. Thus, we have two types of principal deviations:

underachievement (u) and

overachievements (v).

These introduce the possibility to deviate from the goals:

$\sum_j d_{rj} x_j - v_r \leq target_r$ overachievement

$\sum_j d_{rj} x_j + u_r \geq target_r$ underachievement

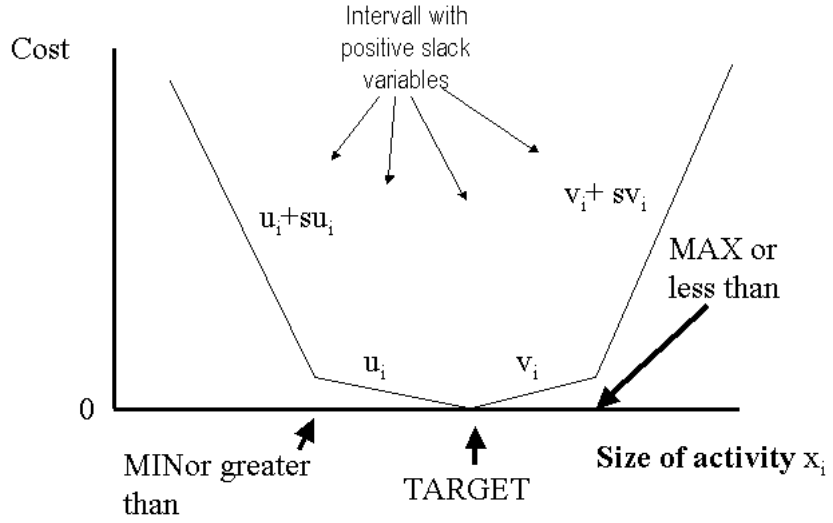
By splitting under and overachievement up in more variables, we may punish increasing divergence harder.

Figure 9 gives a graphical illustration of the "cost" in the objective function of deviation from the target. The choice variable x (size of an activity) is varies freely. However, it is costly to assume a value different from the target. The line pictures this cost that is accounted for in the objective function of the LP-problem. Between min and target, the slack variable u is less than target minus min and the cost is the value/price of this variable in the objective-function. If x is less than MIN also slack variable su will be positive, and increase the cost of reducing x.

Similar, when x is larger then the target, first the slack variable v will be positive, and then if x is larger than max, also slack variable su will be positive and punish this alternative.

In many cases, an interval constraint can equally well be expressed as a target with a minor punishment of diverting from the target. The reason is that a value in the middle often will be more plausible than a corner value. If we have multiple possible solutions in an LP, the solution will always be a corner solution. By identifying a target, rather than an interval, we will end up with the target instead of min or max, when the LP solution is indifferent with respect to the min or max value.

Figure 9: The cost of divergence from target. Slack variables that are greater than 0 in the intervals are indicated along the lines



For each equation r with a defined target and with min and max values, the LP may have four constraints:

overachievement

3) $\sum_j d_{rj}\, x_j \; -v_r \leq target_r$

4) $v_r - sv_r \geq max_r - target_r$

underachievement

5) $\sum_j d_{rj}\, x_j \; + u_r \geq target_r$

6) $u_r - su_r \geq target_r - min_r$

However, if we not want to punish values larger than the target, it is only a "greater than" constraint, merely equation 3 and 4 are included. Like vice, if we only want to make sure that the activity is less than a value, only equation 1 and 2 are included.

For each equation, we get an additional choice variable.

1) v_r
2) sv_r
3) u_r
4) su_r

For each of these choice variables there is a positive objective function coefficient. Thus the program will try to find a solution where the weighted sum of all slack variables is minimized. The relative value of the weights/objective function coefficients may influence the choice of optimal solution.

Typology

Including soil and climatic data is only interesting when some of the activities not are likely to occur under all soil/climatic conditions, or when we expect costs to differ depending on soil types etc.

One way to handle this is to make sure that each activity corresponds to a rotation grown under a particular condition. For each activity we know whether they are grown under soil and climatic conditions #1, #2 or #3. For example let x_1, x_2 and x_3 be grown under condition #1 whereas x_4 and x_5 are grown under condition # 2. The table below illustrates this:

Let e_{kj} be 1 if the rotation j is grown under condition k, and otherwise 0. Notice that each activity corresponds to only one growing condition, so that the sum of each row is 1.

Table 14: Identification of typological type

Typologi id, e_{kj}	x_1	x_2	x_3	x_4	x_5	x_6
Condition 1	1	1	1	0	0	0
Condition 2	0	0	0	1	1	0
Condition 3	0	0	0	0	0	1

From the description of the farm typology (expected data from WP4 in the near future) it follows that:

30% of area for of this farm type has soil and climatic condition #1 which may be described as: Area with condition k= 0,3 *Σ_i FADN $_i$

Thus the problem is expanded with K-1 equations for:

$\sum_j e_{kj} x_j$= Area with condition k, k=1..K-1

The next section summarizes the total programme.

LP-program

Minimize

$C^Z * Z + \sum_r (c^u ur + c^v v_r + c^{us} us_r + c^{vs} vs_r)$

subject to:

1) $\sum_j x_j - Z \leq \sum_i FADN_i$

2) $\sum_j a_{ij} x_j \geq FADN_i$ for all crops i

3) $\sum_j d_{rj} x_j - v_r \leq target_r$ for all r constraints having a maximum value

4) $v_r - sv_r \geq max_r - target_r$ for all r constraints having a maximum value

5) $\sum_j d_{rj} x_j + u_r \geq target_r$ for all r constraints having a minimum value

6) $u_r - su_r \geq target_r - min_r$ for all r constraints having a minimum value

7) $\sum_j e_{kj} x_j$ = Area with condition k, for k=1..K-1

8) $x_{kj} \geq 0$, $Z \geq 0$, $u_r \geq 0$, $v_r \geq 0$, $us_r \geq 0$ and $vs_r \geq 0$

It is likely that we will have data for more than one (n) FADN-farm but only activity information about the total data for the region. Thus we expand the LP-problem by dividing current activity area in area from each farm k such that $x_j = \sum_n x_{nj}$. The new problem is:

Minimize

$C^S * Z + \sum_r (c^u ur + c^v v_r + c^{us} us_r + c^{vs} vs_r)$

subject to:

1) $\sum_j \sum_n x_{nj} - Z \leq \sum_i FADN_i$

2) $\sum_j \sum_n a_{ij} x_{nj} \geq FADN_i$ for all crops i

3) $\sum_j \sum_n d_{rj} x_{nj} - v_r \leq target_r$ for all r constraints having a maximum value

4) $v_r - sv_r \geq max_r - target_r$ for all r constraints having a maximum value

5) $\sum_j \sum_n d_{rj} x_{nj} + u_r \geq target_r$ for all r constraints having a minimum value

6) $u_r - su_r \geq target_r - min_r$ for all r constraints having a minimum value

7) $\sum_j e_{kj} x_j$ = Area with condition k, for k=1..K-1 within all n farms

8) $x_{kj} \geq 0$, $Z \geq 0$, $u_r \geq 0$, $v_r \geq 0$, $us_r \geq 0$ and $vs_r \geq 0$

Appendix E: User Guide for the Detailed Survey on current activities of crop production

User Guide

Set Editor

General points

This survey aims at collecting the same data as the Detailed Survey you already know. However, its structure is completely different. While the previous tool consisted of several pages that had to be filled out in a certain order, here, you can do nearly all the work on one sheet.

You find tool tips, a status bar, context menus (right mouse click), and all the other typical components of a modern GUI. Most of the actions, like manipulations of data are triggered by context menus (opened by a right click). So if you are lost somewhere – try looking first at the context menu.

First sight

On first sight we have a menu bar, tool bar, status bar and three docked windows. (If you need more workspace, these windows can be undocked, see Some window techniques. Menu and tool bar are organised as in every common windows application.

The windows include the following:Set – Sequence – Element

Here we have the SetTree hierarchy. The tree represents the grouping of crops (elements) to a crop rotation (sequence). The crop rotations are grouped to sets (farms or other higher level objects) and sets are related to a project. In our case it applies: The set is the Detailed Survey and the project is your region - so you actually do not have to deal with this. You just have to establish the sequences and elements similar to the example below.

Note:

General Set Editor	Seamless Version
project	region
set	detailed survey
sequence	rotation
element	crop

If you want to – maybe for your meta rotation or for tests – you can easily create a second set for your region. Just go to “New” in the menu bar and choose “new set“.

Management

This window shows a list of management procedures assigned to the current crop.

Resources: input and output

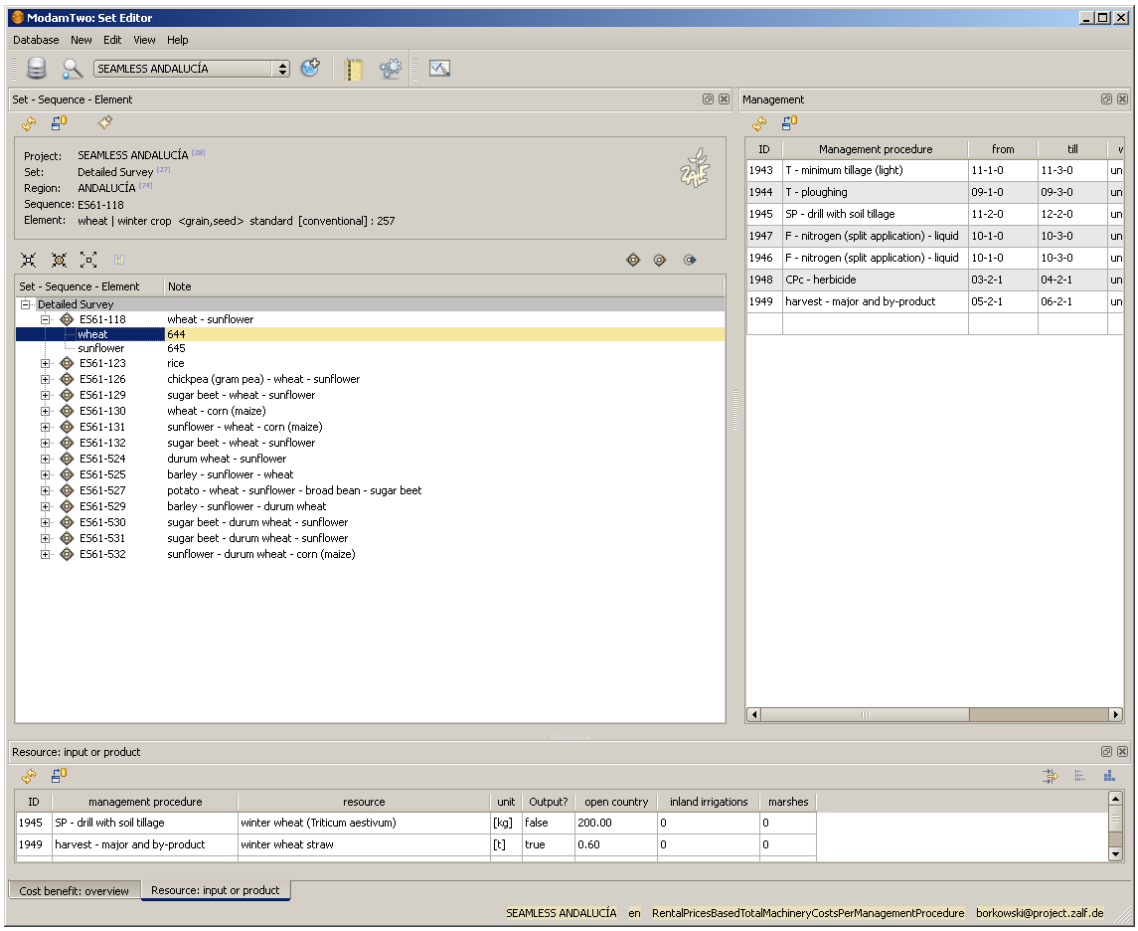
The 3rd window shows the allocated resources (in- and outputs that are related to the current crop) and the used quantities of these resources on one or more particular site class.

Additionally, you can see at the lower rim that there is a second tab called “Cost benefit: overview“. This page is used to collect and show cost, price and labour data. How to use it, is explained in Costs and Labour.

In the lower right corner some general information is given in a status bar: project (here: region), language of the GUI, type of cost calculation as well as user and host:

SEAMLESS ANDALUCÍA en RentalPricesBasedTotalMachineryCostsPerManagementProcedure borkowski@project.zalf.de

The following figure shows how the page will look after some data were entered. (The page you actually see on first sight is of course completely empty, but the document on hand describes how to fill it.)

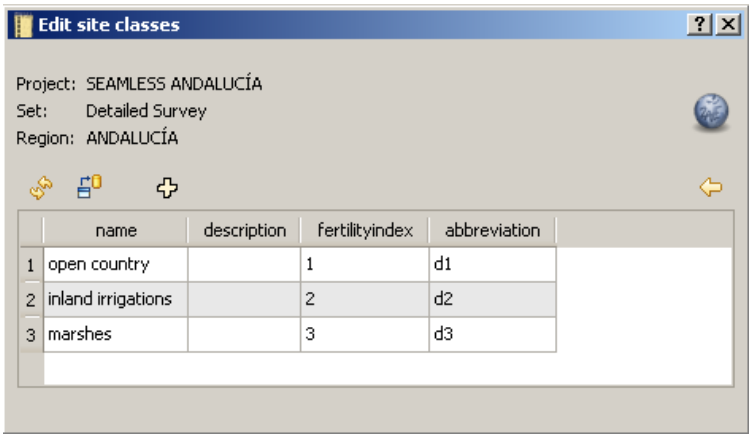


Entering Data

In order to fill in your data, you first must establish the site classes of your region. You need at least one site class. If you want to add and edit resources this is mandatory.

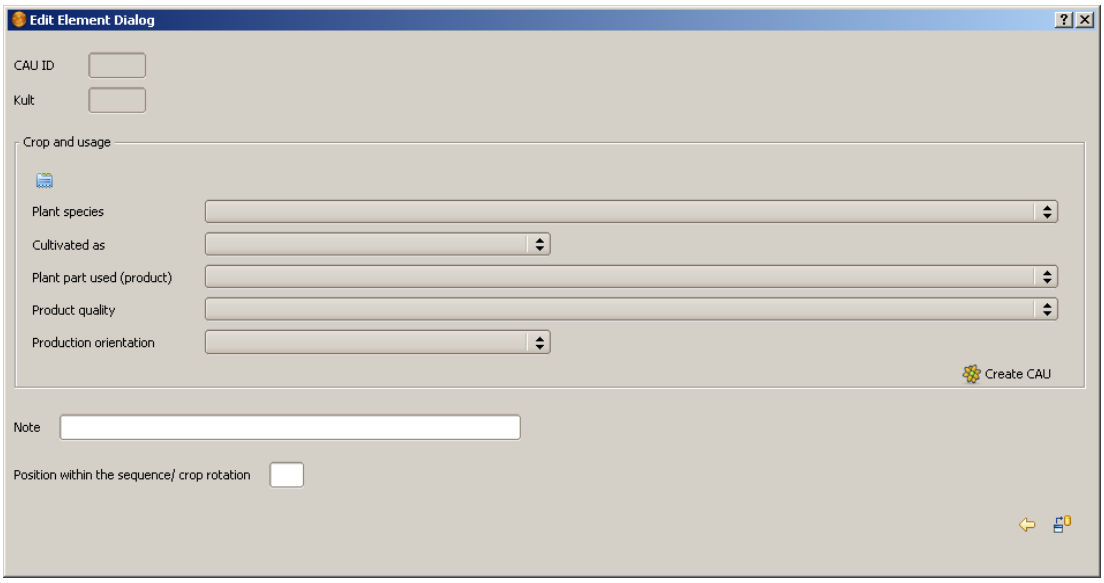
Edit site class dialog

Clicking on the yellow button in the tool bar opens a small dialog asking for the site class name, an abbreviation and a fertilizer index. The latter is a sort key. It determines in which order your site classes are listed. Therefore you do not nee to enter exact soil information but just figures increasing with the fertility of the site class. Name and fertility index (ranking) are mandatory for this table.



Main window: set – sequence - element

After you have added your site classes, you can start to establish sequences and elements. In the context menu of the set (here: Detailed Survey) you open a small dialog. Use "add sequence" to build a new rotation. Call your first rotation "meta rotation". Then click right on the "meta rotation" and chose "add element". A window opens where you can select the respective crop. You have to fill information in every line of the window. If you get a message saying that your crop is not in the database so far, click on the button marked by the yellow flower: Create CAU. After you have filled in all information needed, click on submit. The crop will appear in the set-sequence-element window. (If not, you have probably forgotten to complete some mandatory fields). Please fill in all crops you need for your region in this "meta rotation", you must not think about real rotations at the moment.



Management procedures

Note that this just works if you have established site classes before:

If you click ones on a crop, it is highlighted. Pushing the button in the tool bar marked by some "gear wheels" then opens a dialog where you can choose the management procedures that you want for this crop.

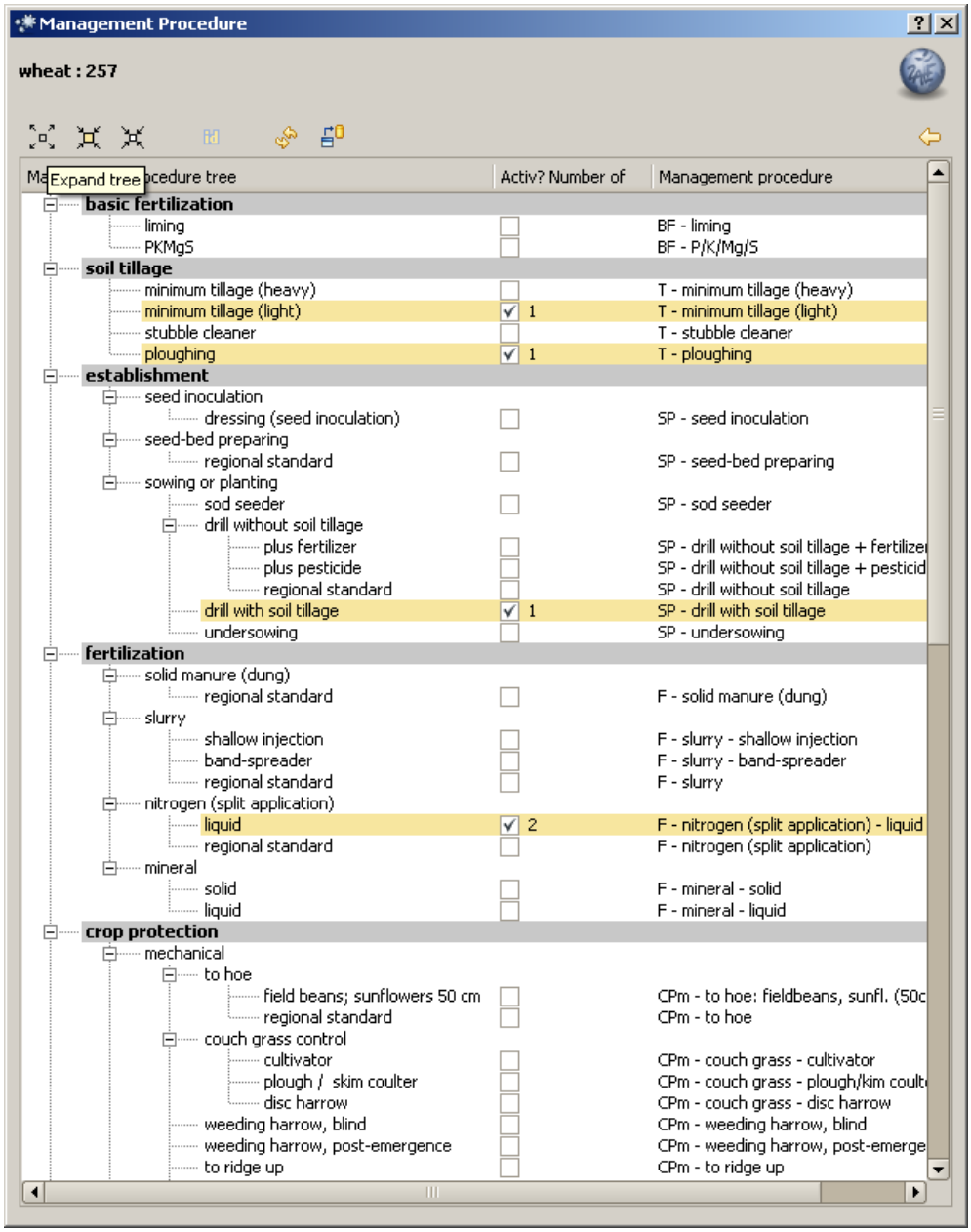
First you can select whether a measure is done or not. Next to the check mark there is then a field for replications - if any. 1 means only one time application of nitrogen split application. If there is a 3: three times application of the procedure.

The three buttons in the upper left corner open and close the tree, the first closes it completely, the second shows only the procedures you have selected, and the third opens the tree completely.

After <submit data> the dock-window named *management* will show the changes. There you can start editing the appropriate time slots etc. The periods are given as follows:

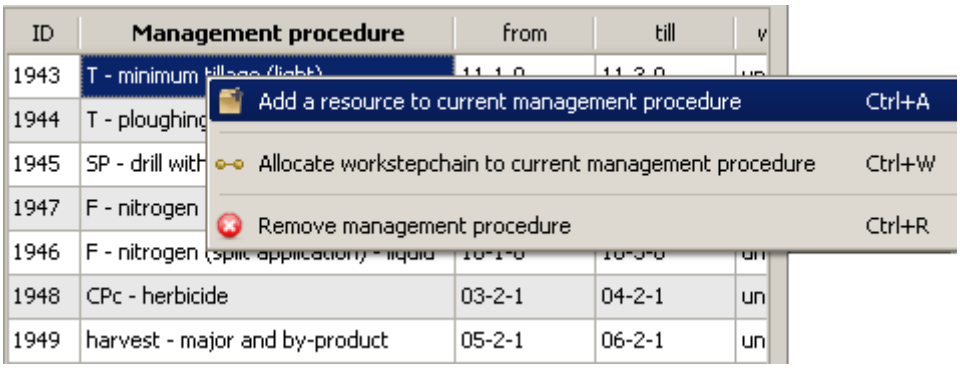
Month - 10 days period - Year

Here, "1" is the year of the harvest and "0" indicates the previous year. Accordingly, 06-01-1 means that the respective management procedure was accomplished in the first third of June during the harvest year of the crop.

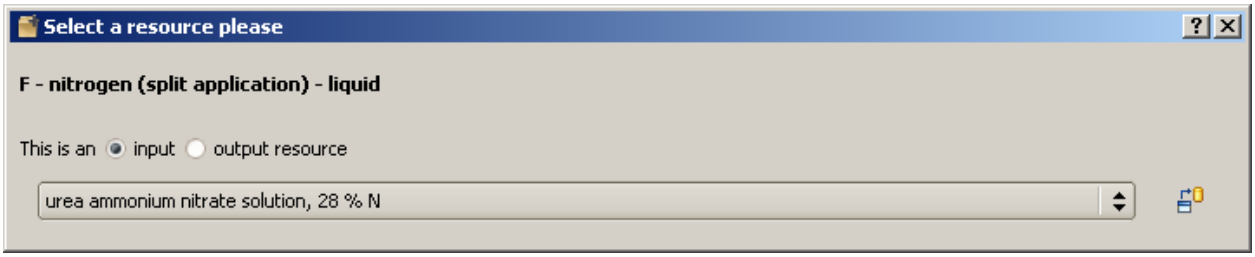


Resources: input and output window

In the third window the quantities of in- and output are to be filled in. If you click right on a certain management procedure the following context menu opens:



If you select the first you can add in- and output resources to your management procedure. Therefore, you first have to select a resource (in- or output) from a drop-down-menu:



Resource: input or product

ID	management procedure	resource	unit	Output?	open country	inland irrigations	marshes
1945	SP - drill with soil tillage	winter wheat (Triticum aestivum)	[kg]	false	200.00	0	0
1947	F - nitrogen (split application) - liquid	Perlkalkstickstoff, lime nitrogen, 19.8 % N, sacked	[kg]	false	200.00	0	0
1946	F - nitrogen (split application) - liquid	Perlkalkstickstoff, lime nitrogen, 19.8 % N, sacked	[kg]	false	200.00	0	0
1946	F - nitrogen (split application) - liquid	urea ammonium nitrate solution, 28 % N	[L]	false	200.00	0	0
1947	F - nitrogen (split application) - liquid	urea ammonium nitrate solution, 28 % N	[L]	false	200.00	0	0
1948	CPc - herbicide	herbicides, general	[kg]	false	1.00	0	0
1949	harvest - major and by-product	winter wheat (Triticum aestivum)	[t]	true	2.50	0	0
1949	harvest - major and by-product	winter wheat straw	[t]	true	0.60	0	0

These resources then appear in the lower window of the GUI. Please enter here quantities, area shares and frequencies. You can show and hide the respective columns by means of the three buttons right above the window.

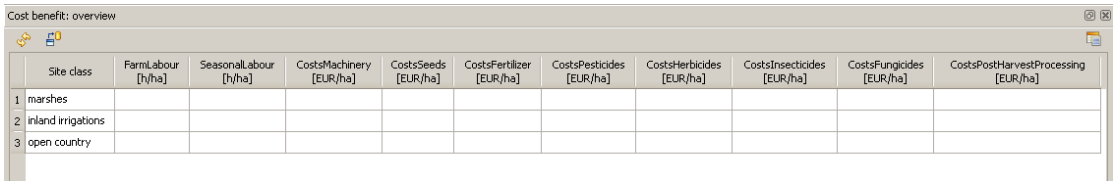
Rotations

As in the previous survey, rotations are easiest done by copy and paste. After you have entered data for all the crops grown in a certain region, you can create different rotations. The context menu on “Detailed Survey” includes “Add sequence”. Use this to make a new rotation. Information you give in the “note” field are shown afterwards in the set – sequence – element window. This should make it easier to tell apart your different rotations later. Then you make a right click on a certain crop in your meta rotation and choose “copy”. When you paste it in you new rotation all information you entered before (like in- and outputs) is copied,

too. After you have established all your rotations, please delete the meta rotation, otherwise it will be treated as a real rotation.

Costs and Labour

There are three possibilities to enter cost and labour information. For all three techniques applies: The final costs and labour values are shown in an additional tab (Cost benefit: overview) that you find at the lower rim of the GUI. (If you cannot see it, mark a crop, so that the docked windows open.) If you open it, you will find such a view:


Cost benefit: overview

	Site class	FarmLabour [h/ha]	SeasonalLabour [h/ha]	CostsMachinery [EUR/ha]	CostsSeeds [EUR/ha]	CostsFertilizer [EUR/ha]	CostsPesticides [EUR/ha]	CostsHerbicides [EUR/ha]	CostsInsecticides [EUR/ha]	CostsFungicides [EUR/ha]	CostsPostHarvestProcessing [EUR/ha]
1	marshes										
2	inland irrigations										
3	open country										

The first three columns show the data you have entered. The latter contain information that we extracted of other data sources for your region.

The two labour variables reflect the fact that in some cases part of the work are executed by permanent staff of the farm (family labour, permanent engagements) while other parts are executed regularly by cheaper seasonal labour. With that distinction it should also be possible to reflect the limitations to the total labour that can be managed by a farmer as every seasonal labourer has to be managed by someone from the farm.

The costs are supposed to be machinery costs including fixed costs, but excluding labour costs.

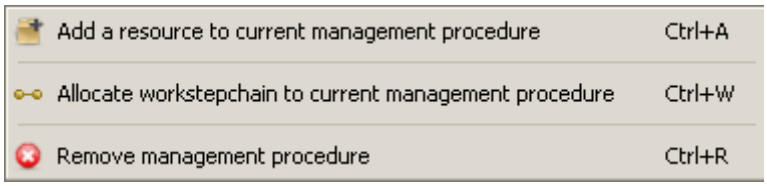
KTBL calculation of costs – Brandenburg

This is a special calculation for Brandenburg (or other potential German regions), as in Germany very detailed data concerning costs and labour are available. The status bar here denotes the cost calculation as:

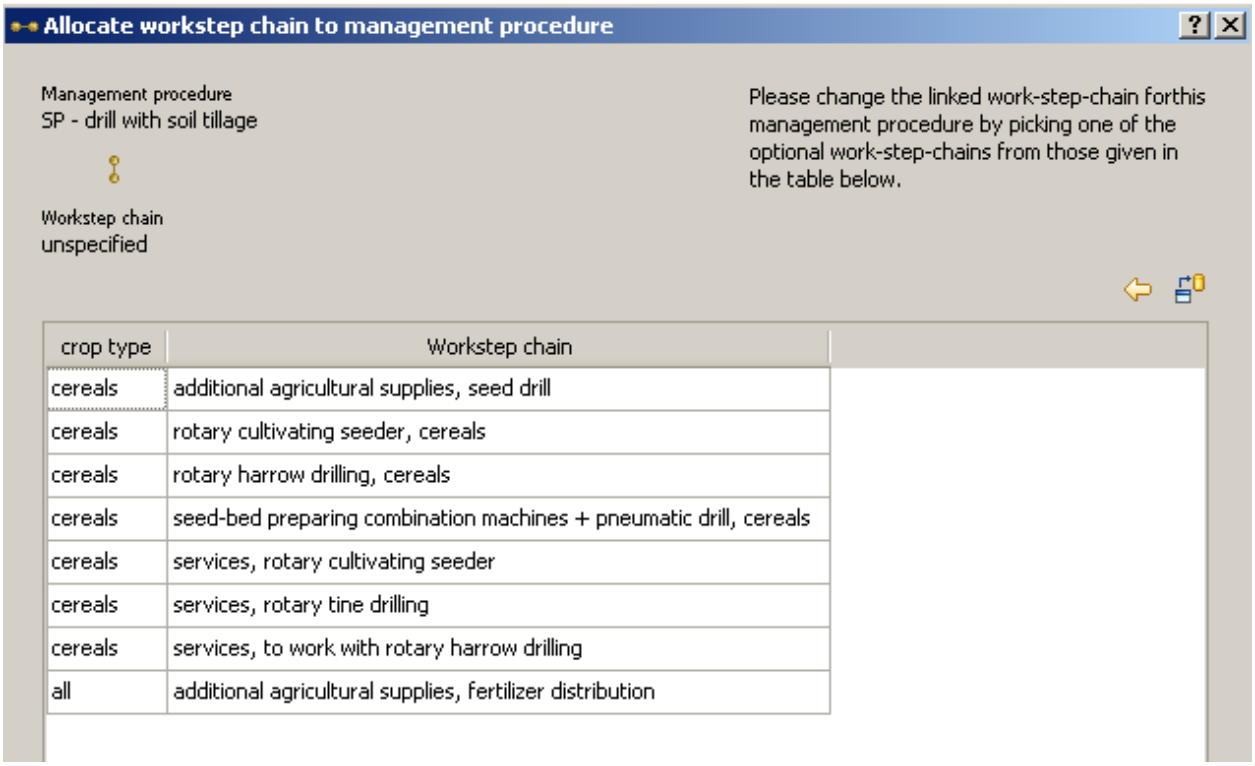
DetailedTotalMachineryCostsPerManagementProcedure.

For this calculation the management procedures window shows additionally the so-called workstepchain, which is the realization of the relative abstract management procedure. We need it to compute for instance the variable costs of your procedure. You can change it as follows:

First you have to open the context menu of a management procedure again.



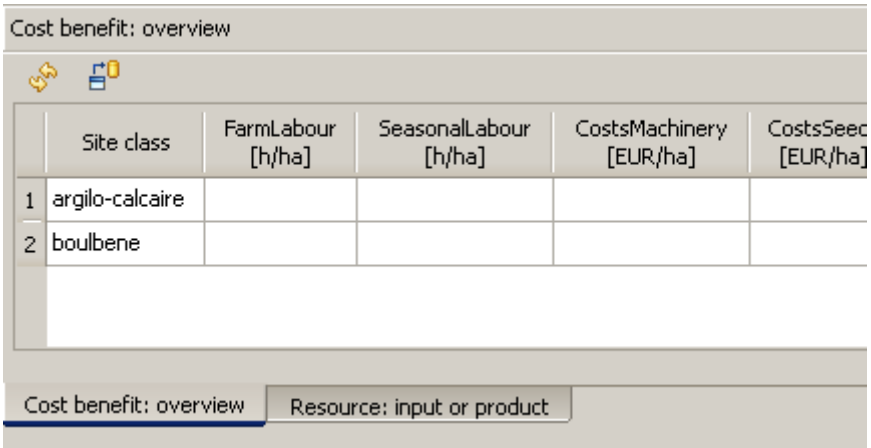
Choosing the second point opens the dialog where you ought to assign the Seamless management procedure to a workstepchain used by our database.



After you have done this for all management procedures the survey computes the costs. You can see them in the cost benefit tab.

Cost definition per management procedures – Andalucía

A second possibility to enter costs and labour is given for regions where costs and labour per management procedure are available. The status bar for these regions says: RentalPricesBasedTotalMachineryCostsPerManagementProcedure. For such regions a button marked by a symbolic diagram pops up next to the gear wheels button. Clicking on it opens a table that lists all management procedures that are used in the respective region. Please enter here your costs and labour data per management procedure. The survey computes cost and labour per crop on its own and shows the values in the tab "Cost benefit: overview".



Costs definition per element – Midi-Pyrénées

For regions where less detailed information is available there is a third possibility to collect cost and labour information. The data are directly typed into the table at "Cost benefit: overview". You have to enter the sum of all management procedures per crop. Note, that these are many more figures than giving the data per management procedure. The status bar marks these regions by TotalMachineryCostsPerCrop.

Some window techniques

If you need some more space it could be use full to hide or undock one of these windows.

If you want to hide a window just click on the top right button (close window) or uncheck the check box of the View Menu within the menu bar (or shortcut alt+V).

If you want to undock the window, drag it at the window title and drop it somewhere.

Try to resize the window as usual for your platform (operating system).

Thanks for your contribution to the data collection for SEAMLESS!

If there are any questions please contact

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Appendix F: User Guide for Simple Survey on current activities

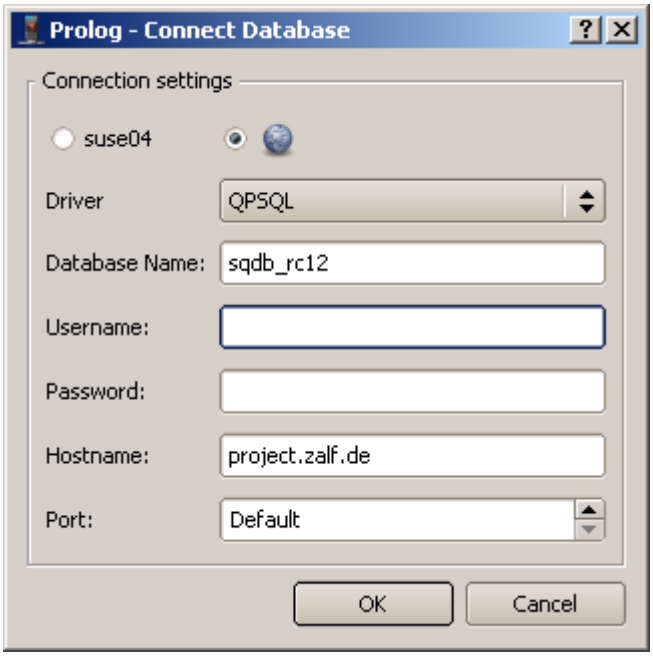
The survey you are facing aims at collecting mainly economic data on the current farming processes in a given region. We need these data to feed them in our model framework. These models will be used to evaluate farmers' reactions on political measures and the economic and ecological effects from field to world level. Of course you will get access to all our data and the models, too. In order to limit the effort of data collection the document on hand offers a guide through the survey.

First some general points

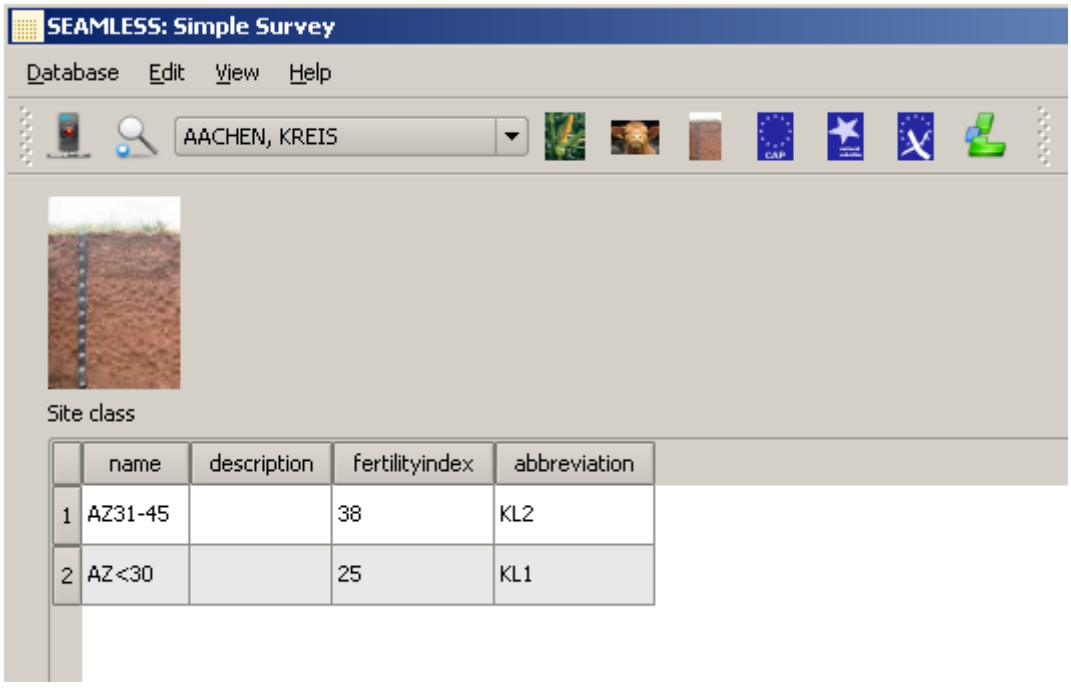
- This is called simple survey, because we want you to fill it out in a rather short time. Actually it should be done in two or three days for a single region. Please, use public information like national or regional data pools as far as possible. However, we do not need recommended data! This should be no problem for the pure economic data, but for agronomic information it might be rather troublesome. If you do not find data pools about the typical usage but only recommendations, you will have to ask experts.
- All economic data ought to exclude premiums or direct payments. Prices, revenues, costs etc. are supposed to be free of public payments! Please, remind this, while filling out the survey.
- All data are per year (annual), respectively for one farming season (from seed bed preparation to harvest). From this follows that the variable costs are considered within this year/cropping season only. This is the classical difference between expendable and durable goods. We would appreciate a consequent usage of this classification in order to ensure comparable and consistent data for the different regions. Below you find more explicit definitions of all our variables.
- Data are required for the average of the years 2000-2001-2002.
- Lastly a more technical point: If you clicked in a field, although you do not want to fill in data there, you can empty it again by typing '-9999' and pressing 'enter'.

First steps

You find the installation at ftp://www.zalf.de/pub/seamless/SimpleSurvey/index.html. Please, download SimpleSurveyClientInstaller.zip. Extract it somewhere and follow the installation guide. It produces a list of files including an application called SeamlessSimpleSurvey.exe. Double-clicking on it opens the following window:



Please fill in the username and password we gave you. If there are any problems at this point contact Martin Hecker: hecker@zalf.de. Note that your access is restricted on one IP-address meaning that you have to use the same computer for all the work.



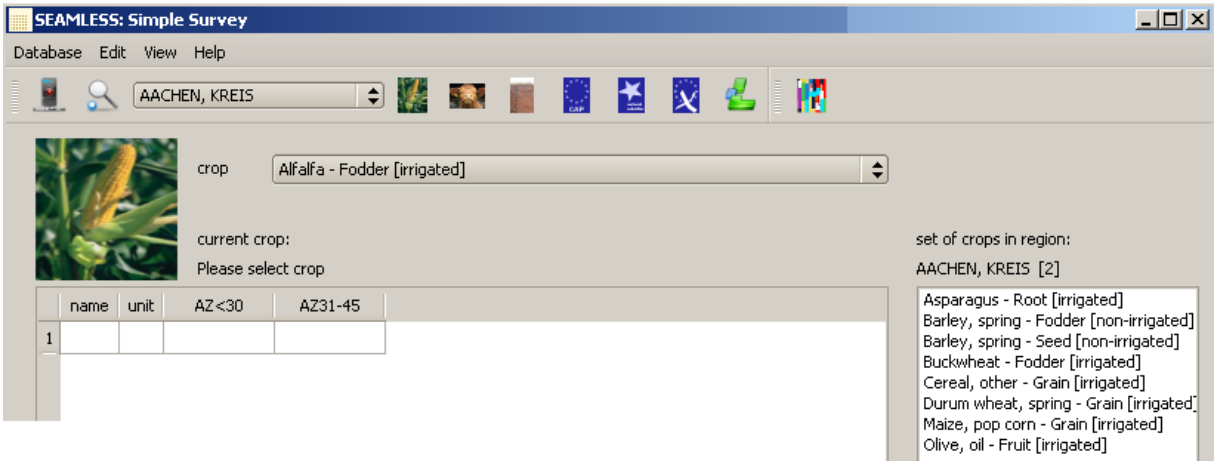
After you have opened the tool, the interface looks as follows:

On top of the page you see your respective region. If you are responsible for more than one region you can also chose the one you want to work with here. Below, the white box shows the different site classes of your region. The screenshot shows a German example, for your region there will either be locally known names or so called dummy site classes. You ought to change the latter in your local ones.

On the right side of the region name there are several buttons. The button marked by a maize cob opens the table for crop variables; the cattle button opens the livestock activities and the other three different policy issues. The green one shows a map of your region. This hand out will refer later to this map as well as to the other tables on this first page. You can always go back to this sheet by clicking on the button marked by the soil profile.

Crops

If you click on the maize cob button the following sheet appears:



In the white window there is free space for your regional crops. If you click on the small arrows in the drop-down menu above the white box a list of crops appears:

Bean - Seed	Phaseolus and Vigna spp.	true
Bean - Seed	Phaseolus and Vigna spp.	false
Beet and Turnip - Root	Brassica spp.	false
Beet and Turnip - Root	Brassica spp.	true
Beet, sugar - Fodder	Beta vulgaris	false
Beet, sugar - Fodder	Beta vulgaris	true
Beet, sugar- Seed	Beta vulgaris	false
Beet, sugar- Seed	Beta vulgaris	true
Beet, sugar- Ware	Beta vulgaris	false
Beet, sugar- Ware	Beta vulgaris	true
Berry (all varieties) - Fruit	Ribes spp., rubus spp.	false
Berry (all varieties) - Fruit	Ribes spp., rubus spp.	true

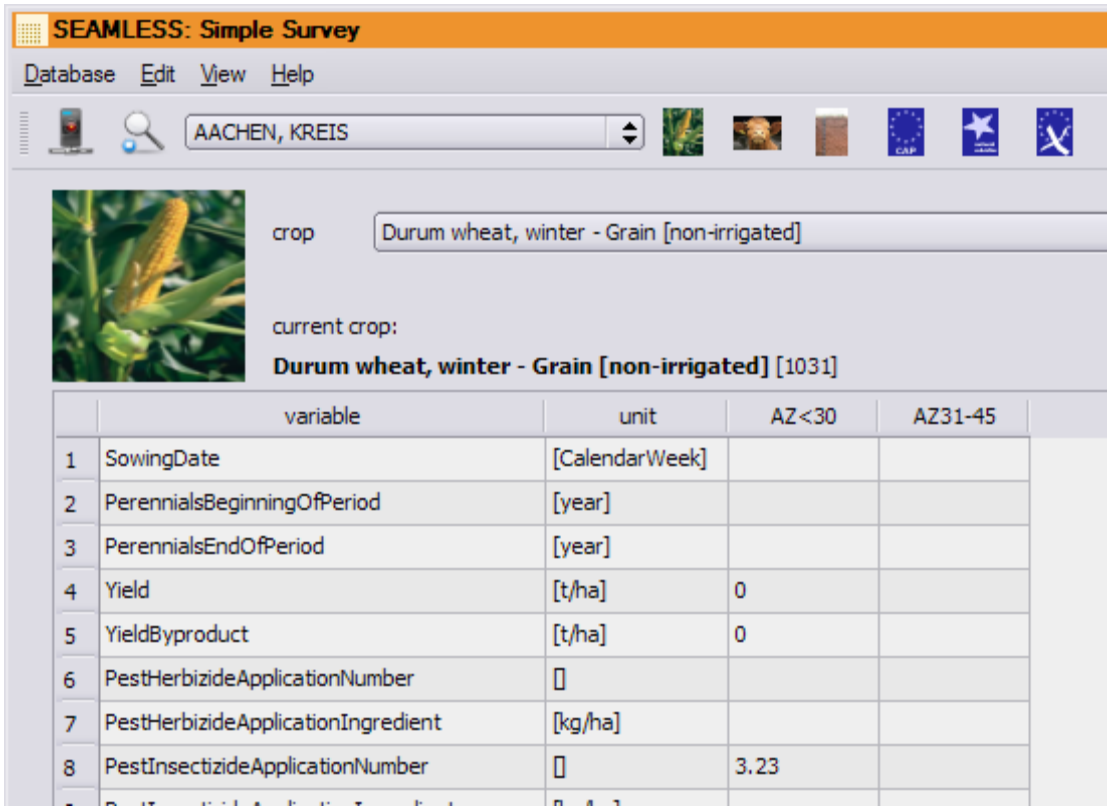
The crops are organised in three columns. The first one shows so called cropproducts: Combination of crops and their usage, e.g. Barley, spring – Fodder denotes spring barley that is used for feeding livestock. The second offers the Latin name of the crop and the third says whether the respective crop is irrigated (“true”) or not (“false” = rainfed). Be careful that you pick the right one. By-product like straw are ignored, please focus on main products.

Perennials have a specific feature: Every perennial is listed for three periods. The periods are defined as follows:

- First period: first year (1 to 1) = planting/sowing year
- Second period: year 2 to x = growing phase, there is no or minimal yield, spraying and fertilisation probably differs from period three
- Third period: year x+1 to y = harvesting phase, there is full yield.

Example: Apple – Fruit – Second Period describes young apple trees without noteworthy yields (something like year 2 to 8).

After you have chosen a relevant cropproduct for your region by a double click, a list of variables appears in the white window:



(It is the same list for all cropproducts.) Here, we would like you to insert your information concerning the chosen cropproduct.

The variables are described as follows:

Variable	Unit	Description
SowingDate	[Calendar Week]	Calendar week (means also planting date, but does not refer to perennials!)
PerennialsBeginningOfPeriod	[year]	Beginning of the growing period of the respective perennial
PerennialsEndOfPeriod	[year]	End of the growing period of the respective perennial
Yield	[t/ha]	Average yield in tons per hectare

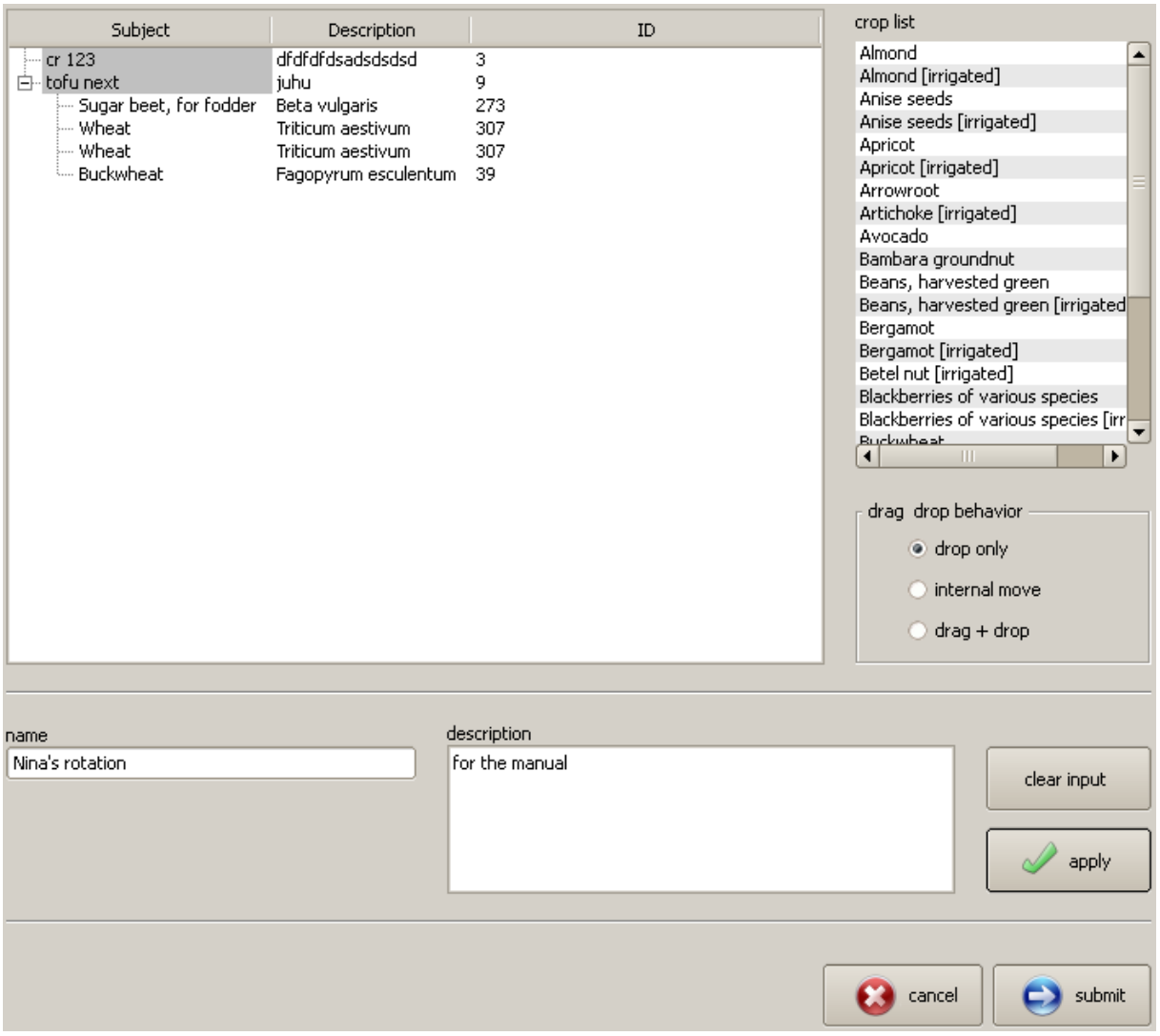
YieldByproduct	[t/ha]	Yield of by-oproduct (important if by-product gives more than 100% of revenues)
PestHerbizideApplicationNumber	[]	Number of applications of herbicides in one farming period
PestHerbizideApplicationIngredient	[kg/ha]	Amount of herbicides per ha in one farming period (active ingredient!)
PestInsectizideApplicationNumber	[]	Number of applications of insecticides in one farming period
PestInsectizideApplicationIngredient	[kg/ha]	Amount of insecticides per ha in one farming period (active ingredient!)
PestFungizideApplicationNumber	[]	Number of applications of funigcides in one farming period
PestFungizideApplicationIngredient	[kg/ha]	Amount of fungicides per ha in one farming period (active ingredient!)
PestGrowthRegulationApplicationNumber	[]	Number of applications of growth regulators in one farming period
PestGrowthRegulationApplicationIngredient	[kg/ha]	Amount of growth regulators per ha in one farming period (active ingredient!)
FertilizerNitrogen	[kg/ha]	Amount of nitrogen per ha in one farming period (active ingredient!)
FertilizerPhosphorus	[kg/ha]	Amount of phosphorus per ha in one farming period (active ingredient!)
FertilizerPotassium	[kg/ha]	Amount of potassium per ha in one farming period (active ingredient!)
IrrigationMeanApplicationNumber	[days]	Number of irrigation days in one farming period
IrrigationMeanApplicationWater	[m³/ha]	Amount of water per ha in one farming period
Price	[EUR/t]	Average selling price of the crop per ton
PriceByproduct	[EUR/t]	Price of by-oproduct (important if by-product gives more than 100% of revenues)
TotalRevenue	[EUR/ha]	= Price * yield
CostsOfFertilizer	[EUR/ha]	Costs of the fertilizers per hectare per farming period
CostsOfCropProtection	[EUR/ha]	Costs of crop protection measures per hectare per farming period
OtherVariableCosts	[EUR/ha]	Costs of seeds (incl. planting material e.g. potaoes!) + insurances (hail e.g.) + drying costs, per farming period
SumOfVariableCosts	[EUR/ha]	= Costs of fertilizer + Costs of crop protection + other variable Costs
GrossMargin	[EUR/ha]	= Total revenues - sum of variable Costs
LaborDemand	[h/ha]	Number of working hours per hectare per farming period

Sowing date applies only for annual crops, perennials have there own variables concerning the timeframe of cultivation:

- PerennialsBeginningOfPeriod: Values 1, 2 or x+1
- PerennialsEndOfPeriod: Values 1, x or y

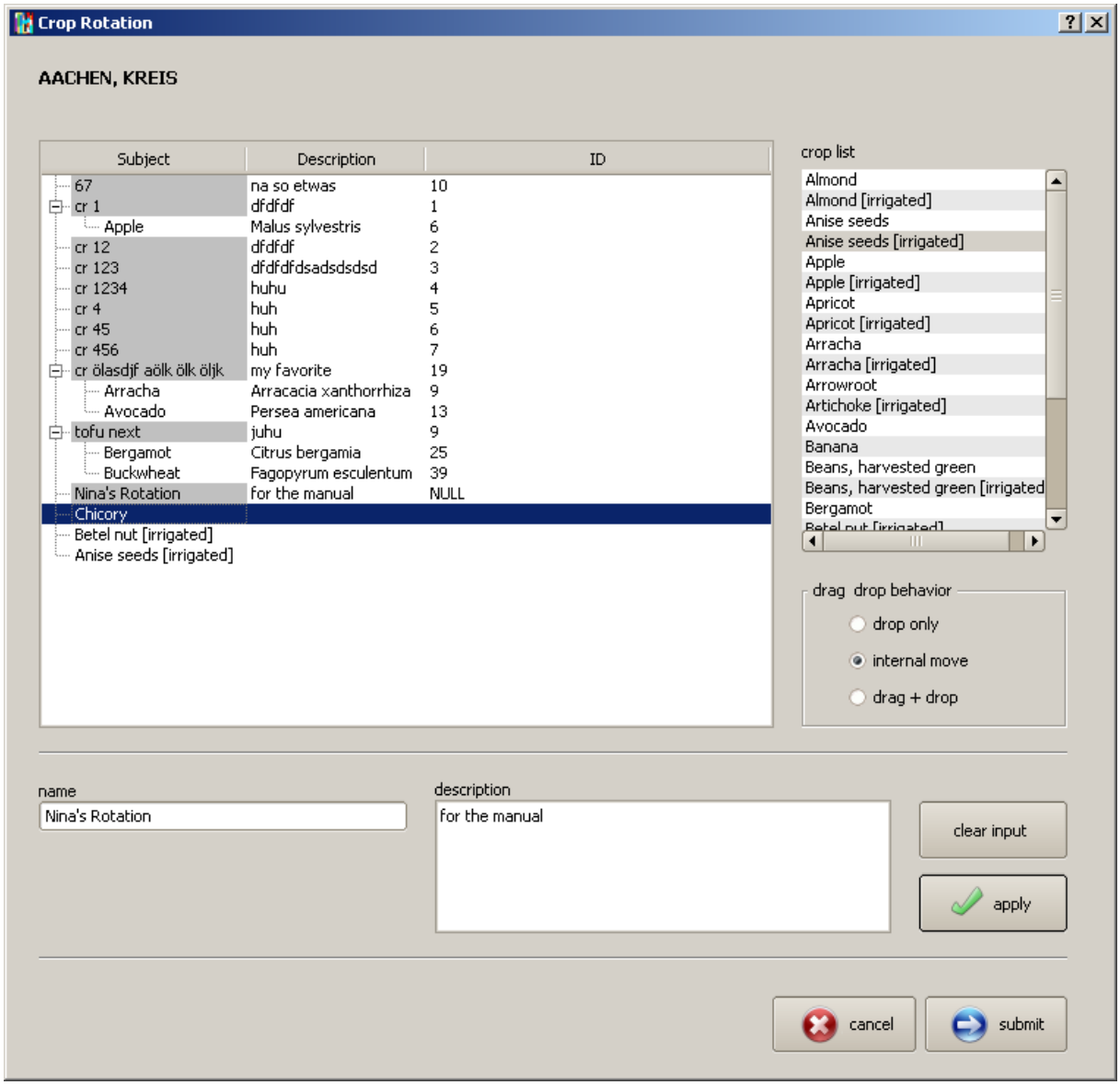
On the right side of the page there are cropproducts listed that were already chosen for the respective region. It is possible to retrieve them later and do further work on them.

Over all you should cover at least 80% of the cropland in your region. We aim at crops that have a share of 5% in the area, but if there are too many different crops, you will have to list also those which have a smaller share (in order to reach the 80%). After you have worked out all the cropproducts grown in your region, click on the very colourful button, which has appeared next to the policy buttons. A sheet opens up that asks for crop rotations:



On the bottom of the page you are supposed enter the name and the description of a new rotation, e.g. “Nina’s rotation” and “for the manual”, then click on “apply”: The new rotation emerges in the white window above.

On the right side you can adjust the drop and drag behaviour of your mouse: Use “drag and drop” first in order to fetch some crops from the list on the right side and put them in the white window.

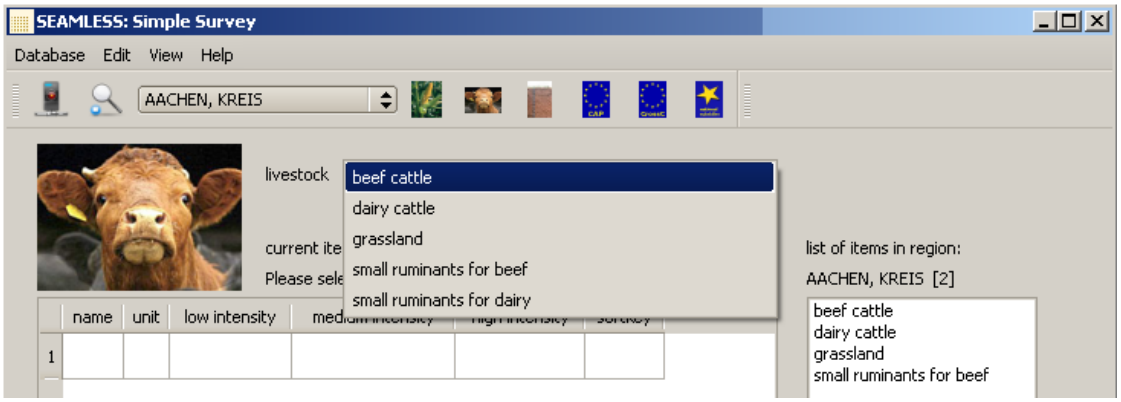


Then pick “internal move” to shift them to your new rotation. If you use “drag and drop” for this, too, the crop will be copied to your rotation. In this case you can use them afterwards again for another rotation or delete them by using the “drop only” setting. The latter is done by a right click on the respective crop and then choosing “delete crop from list”.

Please, create here all important rotations for your region and click on submit (You can change these data later without problems). Then close the page and go back to the first one.

Livestock

Clicking on the friendly looking cattle opens the following page:



Here you see again your region and the already chosen activities on the right. Clicking on the small arrows shows a menu, which is already open in the screenshot above. The sheets for dairy production and meat production are the same, independent from the respective animals. Their variables and descriptions are listed below:

Dairy Cattle

name	unit	description
MilkProduction	[kg/head*year]	Milk production of an average cow per year
SizeOfHerd	[]	Number of animals in an average herd
SoldMilk	[kg/head*year]	Sold milk per cow and year
PriceForMilk	[EUR/kg]	Milk price (gross)
RevenuesFromMilk	[EUR/head*year]	= Sold milk x milk price
WeightOfCalveAtBirth	[kg/head]	Weight of the calve at birth
WeightOfCalveAtSelling	[kg/head]	Weight of the calve at selling
PriceForMalveCalves AtSelling	[EUR/head]	Average market price for male calves
PriceForFemaleCalves AtSelling	[EUR/head]	Average market price for female calves
LossRate	[%]	Calves died
RevenuesFromCalve	[EUR/head]	= (Price for male calves at selling * 0,5 + price for female calves at selling *0,5) *(1- loss rate)
WeightOfHeiferAtSelling	[kg/head]	Weight of the heifer at selling (heifer:1-2 years old)
PriceOfHeiferAtSelling	[EUR/head]	Average selling price of heifers (heifer:1-2 years old)

ReplacementRate	[%]	Replacement rate (Example: If this is 27.9%, the useful life of a cow will be 3.6 years.)
CostsOfReplacement	[EUR/head]	= Price of the young female at selling * replacement rate
WeightAtMaturity	[kg/head]	Weight of the cow at maturiity
AgeAtFirstCalving	[months]	Average age of cow first calving
NumberOfCalvesPerCow	[]	Number of calves per cow
AgeOfCowAtSelling	[years]	Average age of the old cow at selling
PriceOfCowAtSelling	[EUR/head]	Average price of the old cow at selling
RevenuesFromCow	[EUR/head]	= Price of cow at selling * replacement rate
CostsOfConcentrates	[EUR/head*year]	Average costs of concentrates fed (per head and year)
AmountOfConcentrates	[kg/head*year]	Aveage amount of concentrates fed (per head and year)
CostsOfInsemination	[EUR/head*year]	Costs of insemination (per head and year)
CostsOfVeterinary	[EUR/head*year]	Costs of veterinary (per head and year)
OtherVariableCosts	[EUR/head*year]	Cost of hygienic and medicine (beyond veterinary), mineral fodder, epizootic fund (or regional pendant), check of milk production
SumOfVariableCosts	[EUR/head*year]	= Cost of concentrates + cost of insemination + cost of veterinary + other variable costs
TotalRevenues	[EUR/head*year]	= Revenues from milk + revenues from calves * number of calves per cow/age of cow at selling + revenues from cow/age of cow selling
GrossMargin	[EUR/head*year]	= Total revenues – sum of variable costs

First you have to insert the milk production of a cow per year. You can differentiate three intensity levels by this variable. For example, there could be small extensive farms the cows of which manage average 4500l; at the same time there might be some very intensive farms the cows of which produce 12000l. In most cases there will also be some kind of medium group with average 8000l. These would lead to three intensity levels. For every level you have to fill in all other variables in the respective column.

Small ruminants for dairy

Here the same principles apply as for the dairy cow, apart from the first variable: You have to define whether you are going to fill out the survey for goats or sheep.

There could appear following problem: The variables refer to the head of the fattening animal which is the lamb or goatling. Actually, at least in Northern Europe, the costs per lamp or goatling are tiny, so that this dimension does not make a lot of sense. If you face the same problem, use the costs per ewe/female goat and send me a note (nina.borkowski@zalf.de). By means of the FADN data we should be able to switch between these dimensions.

name	**unit**	**description**
IsGoat	[]	Enter 1 if yes! (0 = sheep)
MilkProduction	[kg/head*year]	Milk production of an average female per year
SizeOfHerd	[]	Number of animals in an average herd
SoldMilk	[kg/head*year]	Sold milk per ewe or goat female and year
PriceForMilk	[EUR/kg]	Milk price (gross)
RevenuesFromMilk	[EUR/head*year]	= Sold milk x milk price
WeightOfLambOrGoatling AtBirth	[kg/head]	Weight of the lamb or goatling at birth
WeightOfLambOrGoatling AtSelling	[kg/head]	Weight of the lamb or goatling at selling
PriceOfMale LambOrGoatlingAtSelling	[EUR/head]	Average selling price for a male lamb or goatling
PriceOfFemale LambOrGoatlingAtSelling	[EUR/head]	Average selling price for a female lamb or goatling
LossRate	[%]	Lambs or goatlings died
RevenuesFrom LambsOrGoatlings	[EUR/head]	= (Price for male lambs or goatlings at selling * 0,5 + price for female lambs or goatlings selling *0,5) * (1- loss rate)
WeightOfYoungFemale AtSelling	[kg/head]	Weight of a young female (before brithing) at selling
PriceOfYoungFemale AtSelling	[EUR/head]	Average price of a young female (before brithing) at selling
ReplacementRate	[%]	Replacement rate (Example: If this is 27.9%, the useful life of a female will be 3.6 years.)
CostsOfReplacement	[EUR/head]	Price of the young female at selling * replacement rate

WeightAtMaturity	[kg/head]	Weight of the female at maturiity
AgeAtFirstBirthing	[months]	Average age of female at first birthing
NumberOfBirthings PerFemale	[]	Number of lambs or goatlings per female
AgeOfAdultFemale AtSelling	[years]	Average age of the old female at selling
PriceOfAdultFemale AtSelling	[EUR/head]	Average price of old female at selling
Revenues FromAdultFemale	[EUR/head]	Price of adult female at selling * replacement rate
CostsOfConcentrates	[EUR/head*year]	Average costs of concentrates fed (per head and year)
AmountOfConcentrates	[kg/head*year]	Average amount of concentrates fed (per head and year)
CostsOfVeterinary	[EUR/head*year]	Costs of veterinary (per head and year)
CostsOfInsemination	[EUR/head*year]	Costs of insemination (per head and year)
OtherVariableCosts	[EUR/head*year]	Cost of hygienic and medicine (beyond veterinary), mineral fodder, epizootic fund (or regional pendant), check of milk production
SumOfVariableCosts	[EUR/head*year]	= Cost of concentrates + costs of insemination + cost of veterinary + other variable costs
TotalRevenues	[EUR/head*year]	= Revenues from milk + revenues from lambs or goatlings * number of birthings per female/age of ewe or goat at selling + revenues from adult female/age of adult female at selling
GrossMargin	[EUR/head*year]	Total revenues – sum of variable costs

Beef Cattle

For beef cattle you you have to define the appropriate intensity levels in your region, again, but this time intensity is measured in terms of daily weight gains, therefore, this is the first row to fill out.

name	unit	description
DailyWeightGain	[kg/head*day]	Daily weight gain of the cattle
SizeOfHerd	[]	Number of animals in an average herd
WeightAtBeginning OfFattening	[kg/head]	Weight of the cattle at beginning of the fattening period
LengthOfFatteningPeriod	[days]	Length of fattening period in days
GainPerCattle	[kg/head]	= Daily weight gain * length of fattening period
WeightAtEndOfFattening	[kg/head]	= Weight at beginning of fattening + (over-all) gain per head
WeightOfCarcass	[kg/head]	Weight of carcass at selling
PriceOfCattleAtSelling	[EUR/kg]	Price of the cattle at selling (net, slaughtered)
AgeOfCattleAtSelling	[months]	Average age of the cattle at selling
RevenuesFromCattle	[EUR/head]	= Weight of carcass * price of cattle selling
LossRate	[%]	Cattle died before end of fattening period
PriceForCalve	[EUR/head]	Average market price for calves
CostsOfBreeding	[EUR/head]	Veterinary costs during breeding time (until maturity)
CostsOfConcentrates	[EUR/head]	Average costs of concentrates fed (per head and year)
AmountOfConcentrates	[kg/head]	Average amount of concentrates fed (per head and fattening period)
CostsOfVeterinary	[EUR/head]	Costs of veterinary (per head and fattening period)
OtherVariableCosts	[EUR/head]	Cost of hygienic and medicine (beyond veterinary), mineral fodder, epizootic fund (or regional pendant)
SumOfVariableCosts	[EUR/head]	= Price for calves + costs of breeding + costs of concentrates + costs of veterinary + other variable costs
TotalRevenues	[EUR/head]	= Revenues from beef cattle * (1-loss rate)
GrossMargin	[EUR/head]	= Total revenues – sum of variable costs

Small ruminants for beef production

Again the principles remain the same, just choose first the appropriate small ruminant.

name	unit	description
IsGoat	[]	Enter 1 if yes! (0 = sheep)
DailyWeightGain	[kg/head*day]	Daily weight gain of the fattening sheep or goat
SizeOfHerd	[]	Number of animals in an average herd
WeightAtBeginning OfFattening	[kg/head]	Weight of the goat or sheep at beginning of the fattening period
LengthOfFatteningPeriod	[days]	Length of fattening period in days
GainPerSheepOrGoat	[kg/head]	= Daily weight gain * length of fattening period
WeightAtEndOfFattening	[kg/head]	= Weight at beginning of fattening + (over-all) gain per head
WeightOfCarcass	[kg/head]	Weight of carcass at selling
PriceOfSheepOrGoat AtSelling	[EUR/kg]	Average price of the sheep or goat at selling (net, slaughtered)
AgeOfSheepOrGoat AtSelling	[months]	Average age of the sheep or goat at selling
Revenues FromSheepOrGoat	[EUR/head]	= Weight of carcass * price of sheep or goat at selling
LossRate	[%]	Sheep or goat died before end of fattening period
PriceForLambOrGoatling	[EUR/head]	Average market price for lambs or goatlings
CostsOfBreeding	[EUR/head]	Veterinary costs during breeding time (until maturity)
CostsOfConcentrates	[EUR/head]	Average costs of concentrates fed (per head and year)
AmountOfConcentrates	[kg/head]	Average amount of concentrates fed (per head and fattening period)
CostsOfVeterinary	[EUR/head]	Costs of veterinary (per head and fattening period)
OtherVariableCosts	[EUR/head]	Cost of hygienic and medicine (beyond veterinary), mineral fodder, epizootic fund (or regional pendant)
SumOfVariableCosts	[EUR/head]	= Price for lamb or goatling + costs of breeding + costs of concentrates + costs of veterinary + other variable costs
TotalRevenues	[EUR/head]	= Revenues from small ruminant for beef * (1-loss rate)
GrossMargin	[EUR/head]	= Total revenues – sum of variable costs

Grassland

The fifth sheet among the livestock activities deals with grassland variables. Intensity is here determined by the cut frequency. Note that variable costs are split in two parts: First you are supposed to enter the variable costs of grassland without any harvest activities. Then there are several harvest activities listed, for which we need the respective variable costs.

name	unit	description
NumberOfCuts	[]	Number of cuts per year
BeginOfGrazingPeriod	[CalendarWeek]	Calender week that includes the first grazing day in the year
EndOfGrazingPeriod	[CalendarWeek]	Calender week that includes the last grazing day in the year
OverallBiomass	[t/ha]	Over-all Biomass, dry matter!
BiomassForHay	[%]	Percentage of biomass used for hay production
BiomassForSilage	[%]	Percentage of biomass used for silage production
BiomassForFreshFodder	[%]	Percentage of biomass used for fresh fodder
BiomassForPastureForGrazing	[%]	Percentage of biomass used for grazing
FertilizerNitrogen	[kg/ha]	Amount of nitrogen (active ingredient!) per ha in one farming period
VariableCostsGrassland WithoutCostsOfHarvest	[EUR/t]	Var. costs concerning grassland WITHOUT costs of harvest
VariableCostsOfHarvesting OfHay	[EUR/t]	Var. costs of harvesting of hay (dry matter)
VariableCostsOfHarvesting OfSilage	[EUR/t]	Var. costs of harvesting of silage (dry matter)
VariableCostsOfHarvesting OfFreshFodder	[EUR/t]	Var. costs of harvesting of fresh fodder (dry matter)
VariableCostsOfHarvesting OfPastureForGrazing	[EUR/t]	Var. costs of harvesting of pasture (dry matter)

Policy Variables

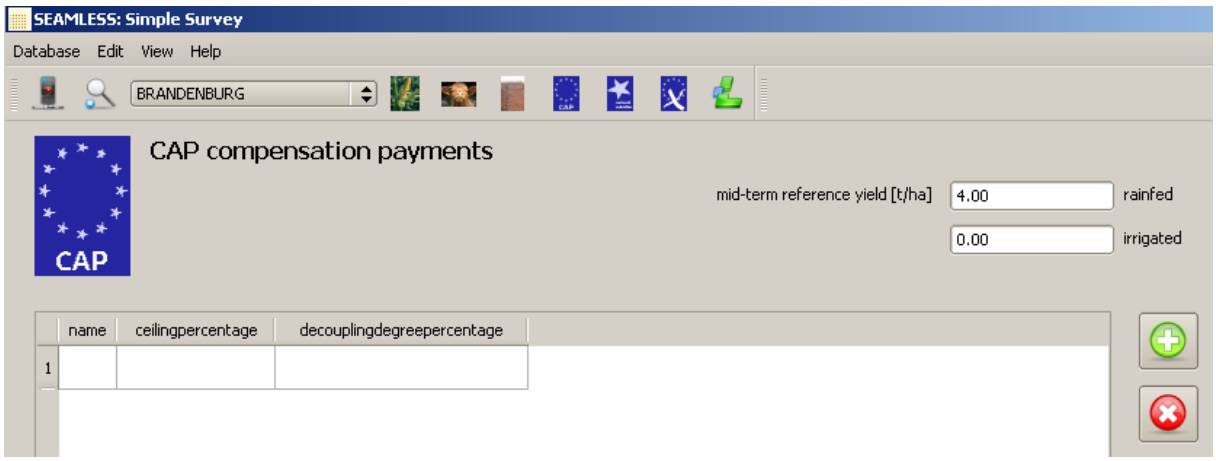
The three buttons next to the region name open different tables that ask for policy information. There is one referring to CAP compensation payments, Cross compliance and Agri-environmental measures as well as national subsidies respectively. Here, we have one general point to consider:

- For all measures there is a certain timeframe: Some questions deal with the period before the Mid-Term-Review, some aim at the years after that reform. For the period before the Mid-Term-review we would like you to insert the average of the

years 2000, 2001 and 2002. For the time after the Mid-Term-Review we use the year 2012 as reference. That is, measures established after the Mid-Term-Review are supposed to be inserted in their 2012 specification. Often this will be the same form as directly after the Mid-Term-Review, but in some cases it is already known that the measures will be developed till 2012. This sounds complicated, but we show you some examples below, in order to clarify this issue.

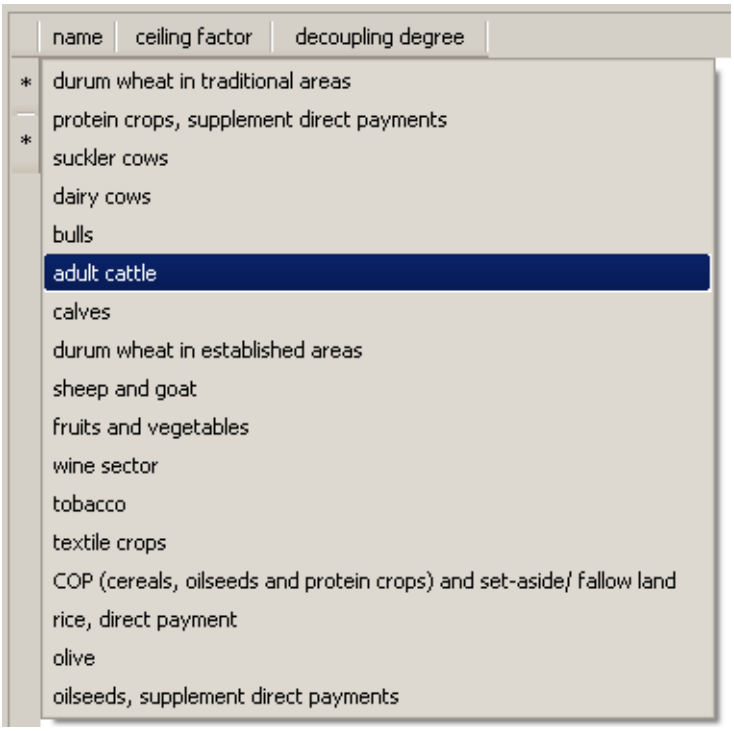
- Note that the information about gap compensation payments is essential for our models. Please, do not forget to enter it!

CAP compensation payments



Here, we need three types of information.

- First you ought to insert your region specific reference yield for irrigated and rainfed crops, based on the average over the three years around 2001. For instance, in Brandenburg we have a regional historic yield only for rainfed crops which equals 4.5 t/ha (average 2000-2002). If there is irrigation in your region please make sure that there is a figure for the reference yield of irrigated crops!
- After this, you need to click on the green plus sign on the left. If you now click in the white field under **name** a list of product groups opens:



Please choose the right group for the compensation payments you are going to enter. The different groups of farm products in the premium schemes are determined by the EU, there should be some information how they are implemented in your country in national publications.

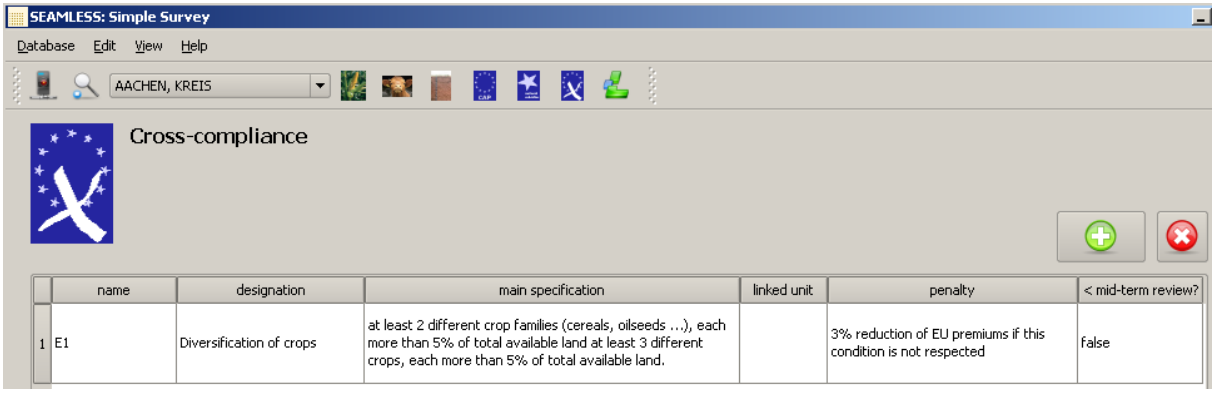
- For every product group we need the **regional ceiling factor** that limited the total amount of premium for the different premium schemes in 2000-2002. This factor represents the percentage of premium cut in case the payments exceed the regional global amount of premiums given to a region (i.e. Budget). It is measured in % of the basic premium. *Excursus: The ceiling factor*

  *Let's take an example; assume there is a region which has 50 ha of COP (cereal, oleaginous and protein) crops and a reference yield of 5T/ha. We presume also that the attribute budget premium for this region is 15000€. If we calculate the premium for this region according to the EU basic premium level it will be: 5 (ref. yield) * 63€/t (fixed by European commission)* 50 ha=15750€. However, the budget given to this region was only 15000€, so the region's government will reduce the basic premium (what we called here cut factor) in order to respect the attribute budget. The cut factor will be equal to = 1-(15000/(5*50*63))=0.04761 and the new basic premium will be about 60€/T. If we recalculate the region premium after adjustment of basic premium we will have: 5*50*63*(1-0.04761)=15000€*

- Lastly, we ask for the **coupling degree** in your region. Here you have to fill in the value of 2012 the first time. If the coupling degree is decreased over the years in your country you are supposed to enter the degree in 2012 instead of the recent one!

Cross compliance

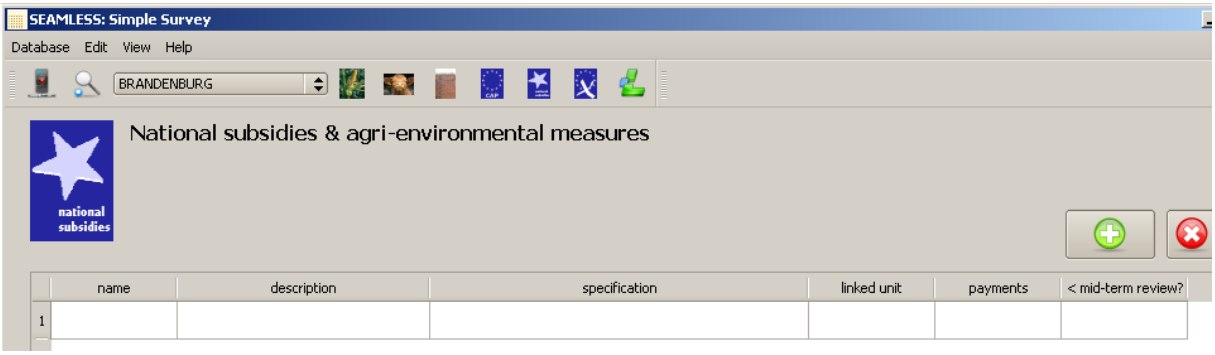
Cross compliance measures are regarded, too. However, you are not supposed to enter every policy established in your region. Just describe the most important three to five measures.



First we need the **name** of the measure, please enter this in the name column.

- **Designation** refers to the aim of the measure, e.g. diversification of crops.
- The next column denoted **main specification** asks for a precise description of the measure, e.g. at least two different crop families (cereals, oilseeds ...), each more than 5% of total available land.
- Afterwards you ought to fill in which **unit** is relevant for the measure.
- Then, we need the **penalty** a farmer suffers if he does not attend the order.
- The last column concerns again the time of implementation. True means **before Mid-Term-Review**, false after this reform. Remind to use here the version of 2012 if the measure is established after the Mid-Term-Review, too! (Note that most of the Cross Compliance measures were established after the Mid-Term-Review.)

National subsidies and Agri-Environmental Measures



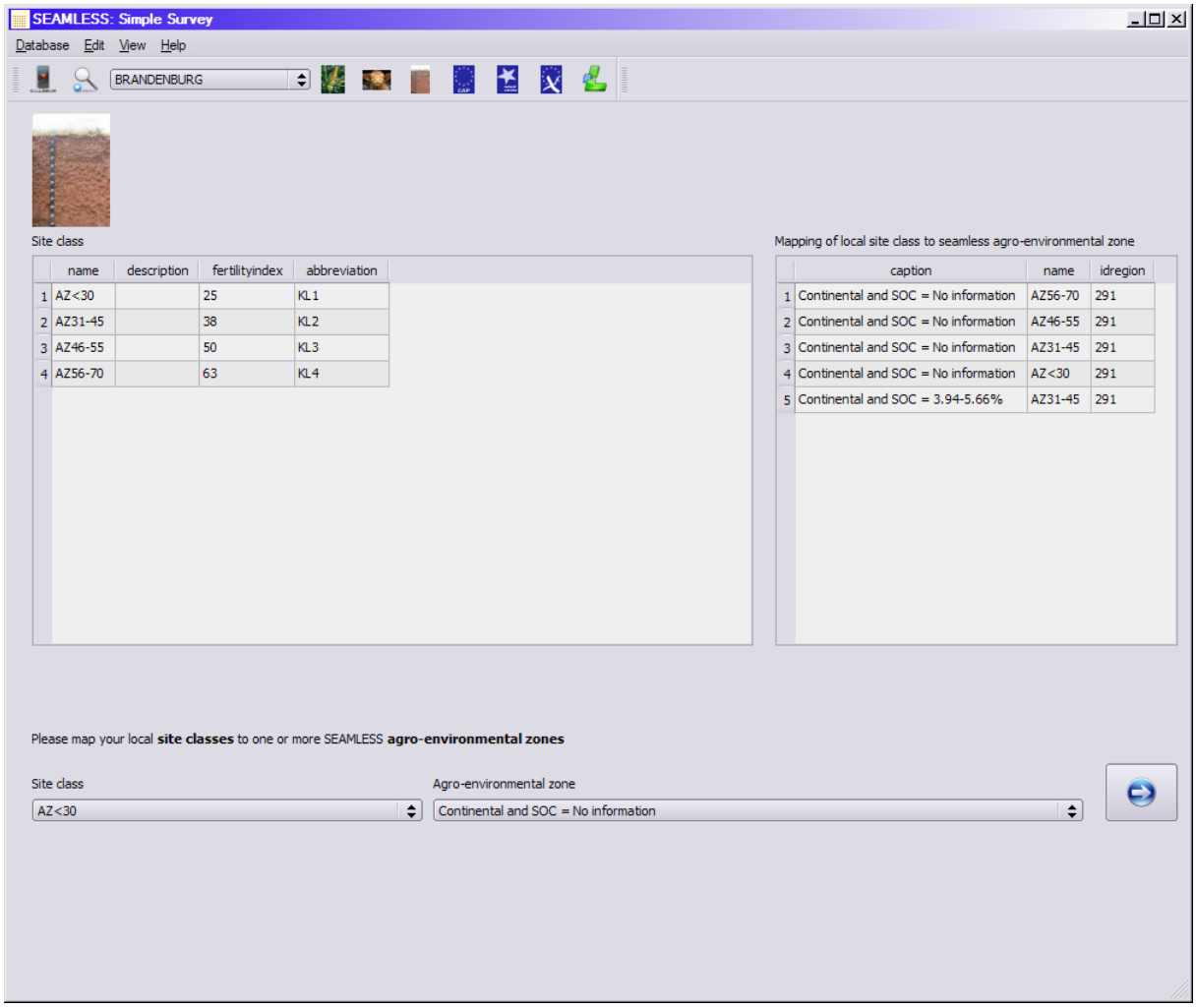
National subsidies and Agri-Environmental Measures are combined because both are a kind of subsidies and both are national.

- In the column **called name** you ought to enter the name of the respective measure.
- If there is an environmental issue included, ergo if it is about Agri-Environmental Measures, please make this clear in the **description** column. Here you also ought to add the aim of the measure, like a higher diversification.

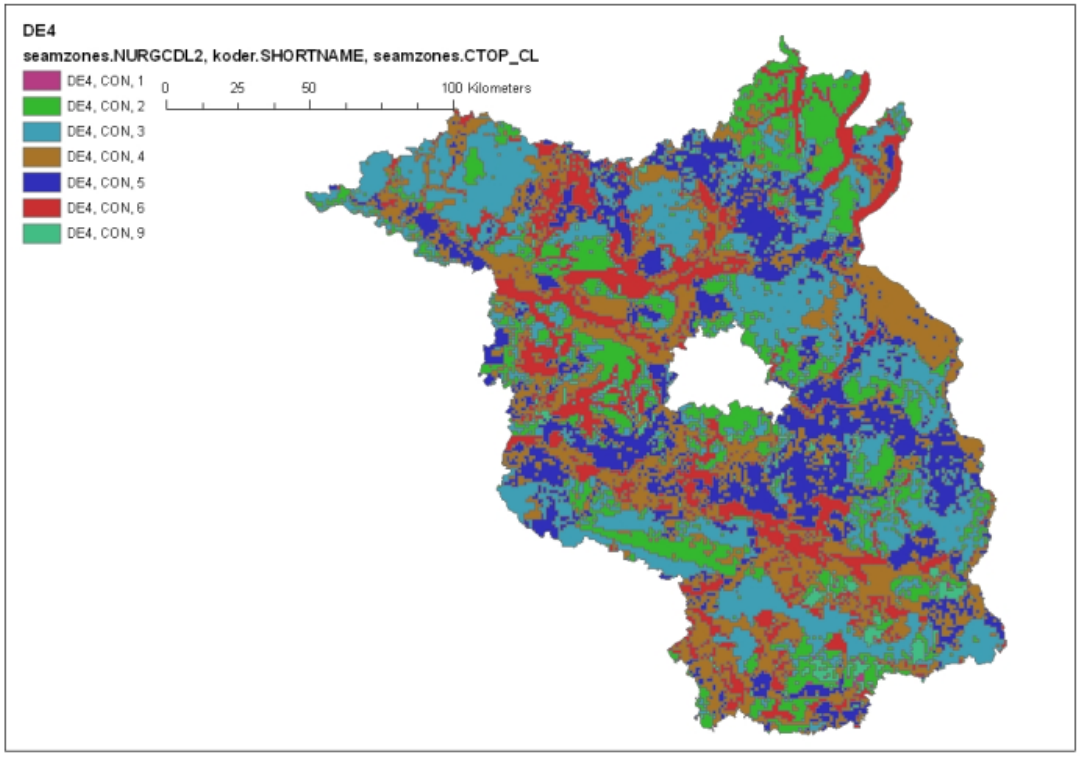
- The columns **Specifications** and **Implementation** ought to contain a more sophisticated description including the mechanism of the measure, e.g. certain threshold values like at least three different crops per rotation.
- The next column asks for the **unit** on which the measure is based, e.g. ha cropland.
- **Payments** refer to the subsidies or rewards a farmer gets when he fulfils the measure in case of an Agri-Environmental measure.
- Last, you have to define the time of implementation. Again, true means **before Mid-Term-Review**, false after this reform.

Linking of zones

There are two last jobs we would like you to do. Please go back to the very first page.



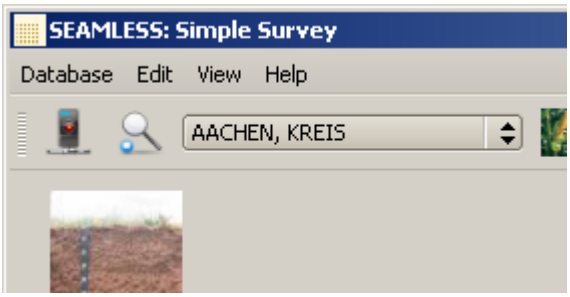
Here you are supposed to map your regional site classes to the Agro-Environmental Zones of our project. In order to facilitate this for you, we have inserted the map mentioned above. Click on the green button on the left (next to the policy buttons). It might take some time till the map opens.



NUTS (v7)	env.zone	abbr.	soil organic content (SOC)	ID	share in area [%]
DE4	Continental	CON	No information	-999	2.90
DE4	Continental	CON	8.86-63.0%	6	14.74
DE4	Continental	CON	5.66-8.86%	5	18.49
DE4	Continental	CON	3.94-5.66%	4	22.49
DE4	Continental	CON	2.46-3.94%	3	24.73
DE4	Continental	CON	1.23-2.46%	2	16.53
DE4	Continental	CON	0.1-1.23%	1	0.12

You can see here our Agro-Environmental Zones. They consist of a climate variable (envzone, e.g. con=continental) and the organic content of the soil (the higher the number the higher the organic content). Additionally the shares of the zones in the area of your region are listed. Use this information in order to connect your siteclasses with our zones.

This linkage ought to be one to many: One siteclass to many AEZ's but not vice versa!
Below the map in the survey the shares of the different AEZ's in the area of the respective regions is listed. Note, that after you have done the linking, the shares of the AEZ's you have chosen should add to 100%. If a specific agrienvironmental zone is not used for agriculture at all, it would be of great help if a site class called forest, urban area, mountains or... is linked to this agrienvironmental zone. Obviously this must be done by a rule of thumb, but please do your best.



At the upper left corner of the survey you find a button with a reading glass: Clicking on it offers a list of views which you can use to check your entries. Most important is overview_fadn_area_per_fadncrop: Please use this one to examine whether you have all important crops for your regions. Try to enter data for all of the mentioned crops. If there is nothing listed for your region contact us. Know, that some of the views need some time to open.

Thanks a lot for your help!

Appendix G: Cropping data with the simple survey[2]

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumb	PestGrowthRegulationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
ALENTEJO [PT]																								
Durum wheat, winter - Grain [irrigated]	1	42	0	0	3,8	1	1,75	1	1	1	1	0	0	175	115	2	1500	608	166,59	35	341,85	543,44	64,56	15,15
Durum wheat, winter - Grain [irrigated]	2	42	0	0	3,8	1	1,75	1	1	1	1	0	0	175	115	2	1500	608	166,59	35	341,85	543,44	64,56	15,15
Durum wheat, winter - Grain [non-irrigated]	2	42	0	0	1,5	3	6	0	0	0	0	0	0	69,5	69,5	0	0	352	93	30	199,11	322,11	29,89	7,2
Grape, wine - Fruit - third period [non-irrigated]	2	1	0	0	8	0	0	2	1	2	1	0	0	0	0	2	1500	4800	0	114,58	1668,01	1782,59	3017,41	153,25
Maize - Grain [irrigated]	1	19	0	0	12	3	7	1	1	0	0	0	0	79,5	106,5	6	5750	1800	208,75	85	372,39	666,14	1133,86	5,78
Maize - Grain [irrigated]	2	19	0	0	12	3	7	1	1	0	0	0	0	179,5	106,5	6	5750	1800	208,75	85	372,39	666,14	1133,86	5,78
Oat - Grain [non-irrigated]	2	40	0	0	1,95	1	1,5	0	0	0	0	0	0	6	0	0	0	156	25,2	12	47,89	85,09	70,91	15,1
Olive, oil - Fruit - third period [irrigated]	2	1	0	0	6	2	1	1	1	1	1	0	0	0	0	2	1500	1020	0	185	273,62	458,62	561,38	39,14
Olive, oil - Fruit - third period [irrigated]	3	1	0	0	6	2	1	1	1	1	1	0	0	0	0	2	1500	1020	0	185	273,62	458,62	561,38	37,14
Sunflower - Grain [irrigated]	1	18	0	0	2,2	1	1,5	0	0	0	0	0	0	15,43	42	2	2000	572	42,73	32	353,02	427,75	144,25	10,69
Sunflower - Grain [irrigated]	2	18	0	0	2,2	1	1,5	0	0	0	0	0	0	15,43	42	2	2000	572	42,73	32	353,02	427,75	144,25	10,69
Sunflower - Grain [non-irrigated]	2	18	0	0	0,6	1	1,5	0	0	0	0	0	0	28,7	100	0	0	156	62,6	32	120,94	215	-59	5,69
ANDALUCÍA [ES]																								
Barley, winter - Grain [non-irrigated]	1	45	0	0	3	1	1	1	1	0	0	0	0	95	46	0	0	360,33	64	33,87	57,6	55,47	204,86	10,25
Barley, winter - Grain [non-irrigated]	2	45	0	0	3	1	1	1	1	0	0	0	0	95	46	0	0	360,33	64	33,87	57,6	55,47	204,86	10,25
Barley, winter - Grain [non-irrigated]	3	45	0	0	3	1	1	1	1	0	0	0	0	95	46	0	0	360,33	64	33,87	57,6	55,47	204,86	10,25
Beet, sugar - Sugar [irrigated]	1	41	0	0	60,93	2	1,5	1	15	1	2,5	0	0	220	90	4	4500	3111,36	331,06	316,29	667,94	1315,29	1796,07	62,8
Beet, sugar - Sugar [irrigated]	2	41	0	0	60,93	2	1,5	1	15	1	2,5	0	0	220	90	4	4500	3111,36	331,06	316,29	667,94	1315,29	1796,07	62,8
Beet, sugar- Sugar [non-irrigated]	1	41	0	0	40	2	1	1	1	1	1	0	0	200	85	0	0	2042,4	119,63	273,54	111,4	504,57	1537,83	45

[2] Variables and variable units are explained in the simple survey user guide (Appendix F, pages).

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Beet, sugar- Sugar [non-irrigated]	2	41	0	0	40	2	1	1	1	1	1	0	0	200	85	0	0	2042,4	119,63	273,54	111,4	504,57	1537,83	45
Chickpea - Grain [non-irrigated]	1	10	0	0	0,95	1	1	1	1	0	0	0	0	0	0	0	0	725,49	0	93,49	150,25	243,74	481,75	22
Chickpea - Grain [non-irrigated]	3	10	0	0	0,95	1	1	1	1	0	0	0	0	0	0	0	0	725,49	0	93,49	150,25	243,74	481,75	22
Cotton (all varieties) - Fibre [irrigated]	1	16	0	0	3,67	2	1	0	0	0	0	1	0,5	150	57	7	6500	1136,94	159,2	165,9	287,68	612,79	524,15	80
Cotton (all varieties) - Fibre [irrigated]	2	16	0	0	3,67	2	1	0	0	0	0	1	0,5	150	57	7	6500	1136,94	159,2	165,9	287,68	512,79	524,15	80
Cotton (all varieties) - Fibre [irrigated]	4	16	0	0	3,67	2	1	0	0	0	0	1	0,5	150	57	7	6500	1136,94	159,2	165,9	287,68	512,79	524,79	80
Cotton (all varieties) - Fibre [non-irrigated]	1	16	0	0	1,54	1	1	2	1	0	0	1	0,5	20	5	0	0	478,34	102	141,27	84	327,27	151,07	50
Cotton (all varieties) - Fibre [non-irrigated]	2	16	0	0	1,54	1	1	2	1	0	0	1	0,5	20	5	0	0	478,34	102	141,27	84	327,27	151,07	50
Durum wheat, winter - Grain [irrigated]	1	45	0	0	4,6	2	1,5	0	0	1	0,75	0	0	120	80	2	1800	631,72	82,49	30,43	126,43	239,35	392,37	19,55
Durum wheat, winter - Grain [irrigated]	2	45	0	0	4,6	2	1,5	0	0	1	0,75	0	0	120	80	2	1800	631,72	82,49	30,43	126,43	239,35	392,37	19,55
Durum wheat, winter - Grain [non-irrigated]	1	45	0	0	3	2	1,5	0	0	1	0,75	0	0	95	46	0	0	412,54	93,7	35,86	71,6	201,16	211,38	10,25
Durum wheat, winter - Grain [non-irrigated]	2	45	0	0	3	2	1,5	0	0	1	0,75	0	0	95	46	0	0	412,54	93,7	35,86	71,6	201,16	211,38	10,25
Durum wheat, winter - Grain [non-irrigated]	3	45	0	0	3	2	1,5	0	0	1	0,75	0	0	95	46	0	0	412,54	93,7	35,86	71,6	201,16	211,38	10,25
Grape, wine - Fruit - third period [non-irrigated]	1	1	10	40	7,46	0	0	1	1	1	1	0	0	25	30	0	0	3295,44	99,53	168,81	10	268,34	3027,1	104
Grape, wine - Fruit - third period [non-irrigated]	3	1	10	40	7,46	0	0	1	1	1	1	0	0	25	30	0	0	3295,44	99,53	168,81	10	268,34	3027,1	104
Maize - Grain [irrigated]	1	10	0	0	11,75	2	1,75	1	10	1	1,2	0	0	243	77	7	8000	1632,19	154,78	68,79	336,73	560,3	1071,89	37,7
Maize - Grain [irrigated]	2	10	0	0	11,75	2	1,75	1	10	1	1,2	0	0	243	77	7	8000	1632,19	154,78	68,79	336,73	560,3	1071,89	37,7
Melon (all varieties) - Fruit [irrigated]	1	23	0	0	41,3	1	1	1	1	1	1	0	0	150	70	7	5500	10427,6	366,54	283,74	2276,7	2926,98	7500,68	80
Melon (all varieties) - Fruit [irrigated]	2	23	0	0	41,3	1	1	1	1	1	1	0	0	150	70	7	5500	10427,6	366,54	283,74	2276,7	2926,98	7500,68	80
Melon (all varieties) - Fruit [irrigated]	4	23	0	0	41,3	1	1	1	1	1	1	0	0	150	70	7	5500	10427,6	366,54	283,74	2276,7	2926,98	7500,68	80
Olive, oil - Fruit - third period [irrigated]	1	1	8	50	4,8	1	1	2	1	1	1	0	0	85	13	3	2200	2489,15	216,59	130,17	251,53	598,29	1890,86	109,9
Olive, oil - Fruit - third period [non-irrigated]	1	1	8	50	2,95	2	1	1	1	0	0	0	0	60	9	0	0	1531,13	114,21	142,63	7,14	263,98	1267,15	85,7
Olive, oil - Fruit - third period [non-irrigated]	3	1	8	50	2,95	2	1	1	1	0	0	0	0	60	9	0	0	1531,13	114,21	142,63	7,14	263,98	1267,15	85,7
Olive, table - Fruit - third period [irrigated]	1	1	8	50	5,53	1	1	1	1	1	1	1	1	85	13	3	2200	2869,03	152,79	169,51	246,56	568,86	2300,17	85,7

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Olive, table - Fruit - third period [non-irrigated]	1	0	8	40	2,64	1	1	1	1	1	1	0	0	60	9	0	0	1370,4	153,93	62,41	183,8	400,4	970,26	85,7
Onion - Root [irrigated]	2	23	0	0	42	1	1	2	1	0	0	0	0	150	70	7	5500	6045,06	141,34	90,69	360,61	592,64	5452,42	250
Onion - Root [irrigated]	4	23	0	0	42	1	1	2	1	0	0	0	0	150	70	7	5500	6045,06	141,34	90,69	360,61	592,64	5452,42	250
Orange - Fruit - first period [irrigated]	1	1	1	3	0	0	0	1	1	1	1	0	0	50	15	2	1000	0	80	150	1320	1550	-1550	30
Orange - Fruit - first period [irrigated]	2	1	1	3	0	0	0	1	1	1	1	0	0	50	15	2	1000	0	80	150	1320	1550	-1550	30
Orange - Fruit - second period [irrigated]	1	1	4	7	11	0	0	2	1	1	1	0	0	120	30	4	4000	1984	150	180	520	850	1134	85
Orange - Fruit - second period [irrigated]	2	1	4	7	11	0	0	2	1	1	1	0	0	120	30	4	4000	1984	150	180	520	850	1134	85
Orange - Fruit - third period [irrigated]	1	1	8	40	32,45	0	0	2	1	1	1	0	0	250	80	6	5000	5853,34	276,75	289,32	710,44	1276,51	4576,83	180
Orange - Fruit - third period [irrigated]	2	1	8	40	32,45	0	0	2	1	1	1	0	0	250	80	6	5000	5853,34	276,75	289,32	710,44	1276,51	4576,83	180
Potato - Root [irrigated]	1	10	0	0	27,43	3	1	1	0,3	0	0	0	0	157	89	7	6500	4903,36	466,96	394,25	1538,37	2399,58	2503,78	80
Potato - Root [irrigated]	2	10	0	0	27,43	3	1	1	0,3	0	0	0	0	157	89	7	6500	4903,36	466,96	394,25	1538,37	2399,58	2503,78	80
Rice - Grain [irrigated]	2	19	0	0	8,73	2	1,3	1	1,5	1	0,3	0	0	138	54	14	14000	2410,4	100,19	78,01	424,32	602,52	1807,88	51
Rice - Grain [irrigated]	4	19	0	0	8,73	2	1,3	1	1,5	1	0,3	0	0	138	54	14	14000	2410,4	100,19	78,01	424,32	602,52	1807,88	51
Soft wheat, winter - Grain [irrigated]	1	45	0	0	4,6	2	1,5	0	0	1	0,75	0	0	120	80	2	1800	631,72	84,22	32,68	126,31	243,22	388,5	19,55
Soft wheat, winter - Grain [irrigated]	2	45	0	0	4,6	2	1,5	0	0	1	0,75	0	0	120	80	2	1800	631,72	84,22	32,68	126,31	243,22	388,5	19,55
Soft wheat, winter - Grain [non-irrigated]	1	45	0	0	3	2	1,5	0	0	1	0,75	0	0	95	46	0	0	412,54	76,51	32,61	62,15	171,28	241,26	10,25
Soft wheat, winter - Grain [non-irrigated]	2	45	0	0	3	2	1,5	0	0	1	0,75	0	0	95	46	0	0	412,54	76,51	32,61	62,15	171,28	241,26	10,25
Soft wheat, winter - Grain [non-irrigated]	3	45	0	0	3	2	1,5	0	0	1	0,75	0	0	95	46	0	0	412,54	76,51	32,61	62,15	171,28	241,26	10,25
Sunflower - Grain [irrigated]	1	10	0	0	2,17	1	1,5	1	10	0	0	0	0	20	5	2	1800	499,48	98,88	26,45	131,63	256,96	242,52	21,5
Sunflower - Grain [irrigated]	2	10	0	0	2,17	1	1,5	1	10	0	0	0	0	20	5	2	1800	499,48	98,88	26,45	131,63	256,96	242,52	21,5
Sunflower - Grain [non-irrigated]	1	10	0	0	1,21	1	1,5	0	0	0	0	0	0	20	5	0	0	279,71	33,39	27,29	52,36	113,04	166,67	9,55
Sunflower - Grain [non-irrigated]	2	10	0	0	1,21	1	1,5	0	0	0	0	0	0	20	5	0	0	279,71	33,39	27,29	52,36	113,04	166,67	9,55
Sunflower - Grain [non-irrigated]	3	10	0	0	1,21	1	1,5	0	0	0	0	0	0	20	5	0	0	279,71	33,39	27,29	52,36	113,04	166,67	9,55
Tomato - Fruit [irrigated]	2	20	0	0	70	2	1	2	1	2	1	0	0	150	70	7	5500	2380	246	355,16	630	1236,16	1143,84	60
Tomato - Fruit [irrigated]	4	20	0	0	70	2	1	2	1	2	1	0	0	150	70	7	5500	2380	246	360,16	630	1236,16	1236,84	60
AUVERGNE [FR]																								
Barley, winter - Grain [non-irrigated]	4	42	0	0	4	1	3	2	1,8	2	1,5	0	0	100	20	0	0	400	120	92	88	300	100	13
Barley, winter - Grain [non-irrigated]	2	42	0	0	2	0	0	0	0	0	0	0	0	50	0	0	0	200	50	0	66	116	84	9
Barley, winter - Grain [non-irrigated]	5	42	0	0	4	1	3	2	1,8	2	1,5	0	0	100	20	0	0	400	120	92	88	300	100	13

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Barley, winter - Grain [non-irrigated]	3	44	0	0	6	2	5	3	2,2	3	2,4	0	0	130	40	0	0	600	180	154	116	450	150	15
Barley, winter - Grain [non-irrigated]	1	42	0	0	1,5	0	0	0	0	0	0	0	0	40	0	0	0	150	40	0	44	84	66	9
Fallow Land [non-irrigated]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	1
Fallow Land [non-irrigated]	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	1
Fallow Land [non-irrigated]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	1
Grass, permanent pasture - Fresh [non-irrigated]	4	1	1	20	6,5	0	0	0	0	0	0	0	0	60	30	0	0	390	40	0	4	44	346	4
Grass, permanent pasture - Fresh [non-irrigated]	2	1	1	20	4,5	0	0	0	0	0	0	0	0	0	0	0	0	270	0	0	4	4	266	2
Grass, permanent pasture - Fresh [non-irrigated]	5	1	1	20	6,5	0	0	0	0	0	0	0	0	60	30	0	0	390	40	0	4	44	346	4
Grass, permanent pasture - Fresh [non-irrigated]	3	1	1	20	7,5	0	0	0	0	0	0	0	0	60	30	0	0	450	40	0	4	44	406	4
Grass, permanent pasture - Fresh [non-irrigated]	1	1	1	20	3,5	0	0	0	0	0	0	0	0	0	0	0	0	210	0	0	4	4	206	2
Grass, permanent pasture - Hay [non-irrigated]	4	1	1	20	6	0	0	0	0	0	0	0	0	60	30	0	0	480	40	0	30	70	410	7
Grass, permanent pasture - Hay [non-irrigated]	2	1	1	20	4	0	0	0	0	0	0	0	0	0	0	0	0	320	0	0	30	30	290	5
Grass, permanent pasture - Hay [non-irrigated]	5	1	1	20	6	0	0	0	0	0	0	0	0	60	30	0	0	480	40	0	30	70	410	7
Grass, permanent pasture - Hay [non-irrigated]	3	1	1	20	7	0	0	0	0	0	0	0	0	60	30	0	0	560	40	0	30	70	490	7
Grass, permanent pasture - Hay [non-irrigated]	1	1	1	20	3	0	0	0	0	0	0	0	0	0	0	0	0	240	0	0	30	30	210	5
Grass, permanent pasture - Silage [non-irrigated]	4	1	1	20	7,5	0	0	0	0	0	0	0	0	60	30	0	0	675	40	0	50	90	585	9
Grass, permanent pasture - Silage [non-irrigated]	2	1	1	20	6	0	0	0	0	0	0	0	0	60	30	0	0	540	40	0	50	90	450	9
Grass, permanent pasture - Silage [non-irrigated]	5	1	1	20	7,5	0	0	0	0	0	0	0	0	60	30	0	0	675	40	0	50	90	585	9
Grass, permanent pasture - Silage [non-irrigated]	3	1	1	20	9,5	0	0	0	0	0	0	0	0	60	30	0	0	855	40	0	50	90	765	9
Grass, temporary (less than four years) - Fresh [non-irrigated]	4	44	0	3	6,5	0	0	0,2	0,2	0	0	0	0	60	30	0	0	390	40	4	20	64	326	5
Grass, temporary (less than four years) - Fresh [non-irrigated]	2	44	0	3	5,5	0	0	0,2	0,2	0	0	0	0	30	0	0	0	330	20	4	20	44	286	5
Grass, temporary (less than four years) - Fresh [non-irrigated]	5	44	0	3	6,5	0	0	0,2	0,2	0	0	0	0	60	30	0	0	390	40	4	20	64	326	5

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Grass, temporary (less than four years) - Fresh [non-irrigated]	3	44	0	3	8	0	0	0,2	0,2	0	0	0	0	60	30	0	0	480	40	4	20	64	416	5
Grass, temporary (less than four years) - Fresh [non-irrigated]	1	44	0	3	4,5	0	0	0,2	0,2	0	0	0	0	30	0	0	0	270	20	4	20	44	226	5
Grass, temporary (less than four years) - Hay [non-irrigated]	4	44	0	3	5,5	0	0	0,2	0,2	0	0	0	0	60	30	0	0	440	40	4	46	90	350	8
Grass, temporary (less than four years) - Hay [non-irrigated]	2	44	0	3	5	0	0	0,2	0,2	0	0	0	0	30	0	0	0	400	20	4	46	70	330	8
Grass, temporary (less than four years) - Hay [non-irrigated]	5	44	0	3	5,5	0	0	0,2	0,2	0	0	0	0	60	30	0	0	440	40	4	46	90	350	8
Grass, temporary (less than four years) - Hay [non-irrigated]	3	44	0	3	7	0	0	0,2	0,2	0	0	0	0	60	30	0	0	560	40	4	46	90	470	8
Grass, temporary (less than four years) - Hay [non-irrigated]	1	44	0	3	4	0	0	0,2	0,2	0	0	0	0	30	0	0	0	320	20	4	46	70	250	8
Grass, temporary (less than four years) - Silage [non-irrigated]	4	44	0	3	7,5	0	0	0,2	0,2	0	0	0	0	60	30	0	0	675	40	4	66	110	565	10
Grass, temporary (less than four years) - Silage [non-irrigated]	2	44	0	3	6	0	0	0,2	0,2	0	0	0	0	60	30	0	0	540	40	4	66	110	430	10
Grass, temporary (less than four years) - Silage [non-irrigated]	5	44	0	3	7,5	0	0	0,2	0,2	0	0	0	0	60	30	0	0	675	40	4	66	110	565	10
Grass, temporary (less than four years) - Silage [non-irrigated]	3	44	0	3	9	0	0	0,2	0,2	0	0	0	0	60	30	0	0	810	40	4	66	110	700	10
Maize - Grain [irrigated]	4	14	0	0	10	2	0,7	2	2	1	0,5	0	0	200	100	7	1000	1100	400	80	216	696	404	13
Maize - Grain [irrigated]	5	14	0	0	10	2	0,7	2	2	1	0,5	0	0	200	100	7	1000	1100	400	80	216	696	404	13
Maize - Grain [irrigated]	3	14	0	0	12	2	0,7	2	2	1	0,5	0	0	200	100	7	1000	1320	400	80	216	696	624	13
Maize - Grain [non-irrigated]	4	14	0	0	6	2	0,7	2	2	1	0,5	0	0	100	80	0	0	660	198	80	72	350	310	10
Maize - Grain [non-irrigated]	5	14	0	0	6	2	0,7	2	2	1	0,5	0	0	100	80	0	0	660	198	80	72	350	310	10
Maize - Grain [non-irrigated]	3	14	0	0	8	2	0,7	2	2	1	0,5	0	0	100	80	0	0	880	198	80	72	350	530	10
Maize, Fodder - Silage (non-irrigated)	4	14	0	0	36,8	2	0,7	1	1	0	0	0	0	100	80	0	0	630	105	72	75	252	378	10
Maize, Fodder - Silage (non-irrigated)	2	14	0	0	31,6	2	0,7	1	1	0	0	0	0	100	80	0	0	540	105	72	75	252	288	10
Maize, Fodder - Silage (non-irrigated)	5	14	0	0	36,8	2	0,7	1	1	0	0	0	0	100	80	0	0	630	105	72	75	252	378	10
Maize, Fodder - Silage (non-irrigated)	3	14	0	0	47,4	2	0,7	1	1	0	0	0	0	100	80	0	0	810	105	72	75	252	558	10
Rape - Grain [non-irrigated]	4	36	0	0	2	2	3	6	4	1	1	0	0	120	15	0	0	400	78	117	63	258	142	13
Rape - Grain [non-irrigated]	5	36	0	0	2	2	3	6	4	1	1	0	0	120	15	0	0	400	78	117	63	258	142	13
Rape - Grain [non-irrigated]	3	36	0	0	3	2	3	6	4	1	1	0	0	120	15	0	0	600	78	117	63	258	342	13
Soft wheat, spring - Grain [non-irrigated]	4	43	0	0	4	1	3	1	0,4	2	2,9	0	0	90	40	0	0	440	150	80	88	318	122	12
Soft wheat, spring - Grain [non-irrigated]	2	43	0	0	3	0,5	1,5	0,5	0,2	1	1,5	0	0	80	30	0	0	330	135	40	64	239	91	10

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumb	PestGrowthRegulationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Soft wheat, spring - Grain [non-irrigated]	5	43	0	0	4	1	3	1	0,4	2	2,9	0	0	90	40	0	0	440	150	80	88	318	122	12
Soft wheat, spring - Grain [non-irrigated]	3	43	0	0	5	1	3	1	0,4	2	2,9	0	0	100	50	0	0	550	168	80	88	336	214	12
Soft wheat, spring - Grain [non-irrigated]	1	43	0	0	2	0	0	0	0	0	0	0	0	60	30	0	0	220	100	0	64	164	56	8
Sunflower - Grain [non-irrigated]	4	15	0	0	2	2	4,5	1	7	0	0	0	0	40	60	0	0	390	125	95	88	288	102	10
Sunflower - Grain [non-irrigated]	5	15	0	0	2	2	4,5	1	7	0	0	0	0	40	60	0	0	390	125	95	88	288	102	10
Sunflower - Grain [non-irrigated]	3	15	0	0	3	2	4,5	1	7	0	0	0	0	40	60	0	0	585	125	95	88	288	297	10
Triticale - Grain [non-irrigated]	4	42	0	0	3	1	3	0	0	0	0	1	2	100	45	0	0	300	116	91	80	287	13	10
Triticale - Grain [non-irrigated]	2	42	0	0	2,5	1	1,5	0	0	0	0	0	0	80	30	0	0	250	90	45	40	175	75	9
Triticale - Grain [non-irrigated]	5	42	0	0	3	1	3	0	0	0	0	1	2	100	45	0	0	300	116	91	80	287	13	10
Triticale - Grain [non-irrigated]	3	42	0	0	4,5	1	3	0	0	0	0	1	2	100	45	0	0	450	116	91	80	287	163	10
Triticale - Grain [non-irrigated]	1	42	0	0	2	0	0	0	0	0	0	0	0	60	30	0	0	200	70	0	40	110	90	8
BRANDENBURG [DE]																								
Barley, spring - Grain [non-irrigated]	1	11	0	0	5,3	1	2	0	0	1	0,2	0	0	109	24	0	0	623	113	69	57	239	384	3,2
Barley, spring - Grain [non-irrigated]	4	11	0	0	2,8	0,75	2	0	0	0,6	0,2	0	0	58	13	0	0	329	60	42	49	151	178	2,8
Barley, spring - Grain [non-irrigated]	3	11	0	0	3,4	0,75	2	0	0	0,7	0,2	0	0	70	15	0	0	400	73	39	51	163	237	2,9
Barley, spring - Grain [non-irrigated]	2	11	0	0	4,5	1	2	0	0	1	0,2	0	0	93	20	0	0	529	96	58	55	209	320	3,1
Barley, winter - Grain [non-irrigated]	1	38	0	0	7	1	4	0	0	0,8	0,75	0,3	0,46	151	33	0	0	574	156	96	67	319	255	3,7
Barley, winter - Grain [non-irrigated]	4	38	0	0	3,6	0,8	4	0	0	0,8	0,75	0	0	77	17	0	0	295	80	58	56	194	101	3,4
Barley, winter - Grain [non-irrigated]	3	38	0	0	4,8	0,8	4	0	0	0,8	0,75	0	0	104	23	0	0	394	108	73	60	241	153	3,6
Barley, winter - Grain [non-irrigated]	2	38	0	0	6	0,8	4	0	0	0,8	0,75	0,25	0,46	129	28	0	0	492	134	78	64	276	216	3,5
Bean - Grain [non-irrigated]	1	10	0	0	3,5	1	0,72	0,75	0,15	0	0	0	0	0	23	0	0	403	68	87	125	280	123	2,9
Bean - Grain [non-irrigated]	2	10	0	0	2,5	1	0,72	0,75	0,15	0	0	0	0	0	17	0	0	288	51	87	101	239	49	3,2
Beet, sugar- Sugar [non-irrigated]	1	14	0	0	45	3	0,7	1	0,16	0	0	0	0	207	34	0	0	2160	229	220	180	629	1531	5,2
Beet, sugar- Sugar [non-irrigated]	3	14	0	0	35	3	0,7	1	0,16	0	0	0	0	161	26	0	0	1680	177	220	180	577	1103	5,2
Beet, sugar- Sugar [non-irrigated]	2	14	0	0	40	3	0,7	1	0,16	0	0	0	0	184	30	0	0	1920	203	220	180	603	1317	5,2
Fallow Land [non-irrigated]	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37	0	3,3
Fallow Land [non-irrigated]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37	0	3,3
Fallow Land [non-irrigated]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37	0	3,3
Fallow Land [non-irrigated]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37	0	3,3
Fallow Land [non-irrigated]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37	0	3,3
Grass, temporary (less than four years) - Fresh [non-irrigated]	1	12	0	0	39,6	0	0	0	0	0	0	0	0	80	26	0	0	0	130	0	34	164	-164	11,6
Grass, temporary (less than four years) - Fresh [non-irrigated]	3	12	0	0	39,6	0	0	0	0	0	0	0	0	80	26	0	0	0	130	0	34	164	-164	11,6
Grass, temporary (less than four years) - Fresh [non-irrigated]	2	12	0	0	39,6	0	0	0	0	0	0	0	0	80	26	0	0	0	130	0	34	164	-164	11,6

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Lupine (all varieties) - Grain [non-irrigated]	5	13	0	0	1,5	1	0,38	0,75	0,15	0	0	0	0	0	10	0	0	177	26	43	128	197	-20	2,7
Lupine (all varieties) - Grain [non-irrigated]	4	13	0	0	1,8	1	0,38	0,75	0,15	0	0	0	0	0	12	0	0	212	33	43	130	206	6	2,7
Lupine (all varieties) - Grain [non-irrigated]	3	13	0	0	2,1	1	0,38	0,75	0,15	0	0	0	0	0	14	0	0	248	40	51	132	223	25	2,7
Lupine (all varieties) - Grain [non-irrigated]	2	13	0	0	2,5	1	0,38	0,75	0,15	0	0	0	0	0	18	0	0	295	49	51	134	234	61	2,8
Maize - Grain [non-irrigated]	1	17	0	0	8	1	0,6	0,3	0,07	0	0	0	0	192	35	0	0	840	188	83	349	620	220	3,3
Maize - Grain [non-irrigated]	3	17	0	0	6	1	0,6	0,3	0,07	0	0	0	0	144	26	0	0	630	140	69	255	464	166	3
Maize - Grain [non-irrigated]	2	17	0	0	7	1	0,6	0,3	0,07	0	0	0	0	168	31	0	0	735	165	83	320	568	167	3,2
Maize, Fodder - Fodder [non-irrigated]	1	18	0	0	33,1	1	0,6	0,1	0,07	0	0	0	0	144	31	0	0	0	159	66	117	342	-342	5,4
Maize, Fodder - Fodder [non-irrigated]	4	18	0	0	20,7	1	0,6	0,1	0,07	0	0	0	0	90	19	0	0	0	98	66	111	275	-275	4,9
Maize, Fodder - Fodder [non-irrigated]	3	18	0	0	26,2	1	0,6	0,1	0,07	0	0	0	0	114	24	0	0	0	124	66	117	307	-307	5,2
Maize, Fodder - Fodder [non-irrigated]	2	18	0	0	30,3	1	0,6	0,1	0,07	0	0	0	0	132	28	0	0	0	145	66	117	328	-328	5,3
Oat - Grain [non-irrigated]	1	10	0	0	5	0,8	0,11	0,2	0,01	0	0	0	0	105	26	0	0	400	121	18	59	198	202	3,2
Oat - Grain [non-irrigated]	4	10	0	0	2,2	0,5	0,11	0	0	0	0	0	0	48	12	0	0	176	56	8	47	111	65	2,7
Oat - Grain [non-irrigated]	3	10	0	0	3	0,5	0,11	0	0	0	0	0	0	65	16	0	0	240	76	8	50	134	106	2,8
Oat - Grain [non-irrigated]	2	10	0	0	4	0,6	0,11	0	0	0	0	0	0	85	22	0	0	320	100	9	55	164	156	3
Pea - Grain [non-irrigated]	1	10	0	0	3,5	1	0,96	0,5	0,15	0	0	0	0	0	22	0	0	420	67	67	123	257	163	2,9
Pea - Grain [non-irrigated]	4	10	0	0	2	1	0,96	0,5	0,15	0	0	0	0	0	13	0	0	240	38	67	111	216	24	2,7
Pea - Grain [non-irrigated]	3	10	0	0	2,5	1	0,96	0,5	0,15	0	0	0	0	0	15	0	0	300	47	67	115	229	71	2,7
Pea - Grain [non-irrigated]	2	10	0	0	3	1	0,96	0,5	0,15	0	0	0	0	0	18	0	0	360	57	67	119	243	117	2,8
Potato - Root [non-irrigated]	4	14	0	0	25	1	0,53	1,5	0,02	4	0,2	0,2	1	107	18	0	0	2000	121	137	529	787	1213	11,2
Potato - Root [non-irrigated]	3	14	0	0	27	1	0,53	1,5	0,02	4	0,2	0,3	1	117	19	0	0	2160	133	141	529	803	1357	11,3
Potato - Root [non-irrigated]	2	14	0	0	30	1	0,53	1,5	0,02	4	0,2	0,5	1	130	21	0	0	2400	150	176	529	855	1545	11,9
Rape - Grain [non-irrigated]	1	34	0	0	4,2	1,1	0,2	4,3	0,01	0,75	0,25	1,1	0,4	185	45	0	0	861	199	161	57	417	444	3,5
Rape - Grain [non-irrigated]	4	34	0	0	2,2	1	0,2	1,6	0,01	0	0	0	0	97	24	0	0	451	104	66	47	217	234	2,7
Rape - Grain [non-irrigated]	3	34	0	0	3	1	0,2	2	0,01	0	0	0,2	0,4	132	32	0	0	615	142	89	51	282	333	2,8
Rape - Grain [non-irrigated]	2	34	0	0	3,6	1,1	0,2	4,4	0,01	0,4	0,25	0,5	0,4	159	38	0	0	738	171	143	54	368	370	3,3
Rye - Grain [non-irrigated]	5	38	0	0	2,3	0,5	1,2	0	0	0,3	0,15	0	0	33	10	0	0	173	46	23	29	98	75	2,8
Rye - Grain [non-irrigated]	1	38	0	0	6,4	0,8	1,2	0	0	0,8	0,15	0,8	1,44	125	28	0	0	480	129	86	42	257	223	3,2
Rye - Grain [non-irrigated]	4	38	0	0	3,5	0,5	1,2	0	0	0,4	0,15	0,35	1,44	69	15	0	0	263	70	28	33	131	132	3
Rye - Grain [non-irrigated]	3	38	0	0	4,6	0,6	1,2	0	0	0,5	0,15	0,5	1,44	90	20	0	0	345	92	52	36	180	165	2,8
Rye - Grain [non-irrigated]	2	38	0	0	5,7	0,7	1,2	0	0	0,6	0,15	0,6	1,44	112	25	0	0	428	114	65	40	219	209	3

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Soft wheat, winter - Grain [non-irrigated]	1	39	0	0	7,5	1	0,75	0,25	0,15	1,7	0,15	1,2	1,44	169	35	0	0	690	164	117	81	362	328	4
Soft wheat, winter - Grain [non-irrigated]	4	39	0	0	3,8	1	0,75	0	0	0,5	0,15	0	0	85	17	0	0	350	82	58	69	209	141	3,2
Soft wheat, winter - Grain [non-irrigated]	3	39	0	0	5	1	0,75	0	0	0,8	0,15	0	0	113	24	0	0	460	111	74	73	258	202	3,4
Soft wheat, winter - Grain [non-irrigated]	2	39	0	0	6,3	1	0,75	0,2	0,15	1,5	0,15	0,4	1,44	141	29	0	0	580	137	101	77	315	265	3,7
Sunflower - Grain [non-irrigated]	1	17	0	0	2,8	1,2	0,25	0	0	0	0	0	0	141	37	0	0	560	184	70	172	426	134	2,6
Sunflower - Grain [non-irrigated]	4	17	0	0	1,5	1	0,25	0	0	0	0	0	0	76	20	0	0	300	99	56	136	291	9	2,5
Sunflower - Grain [non-irrigated]	3	17	0	0	1,8	1	0,25	0	0	0	0	0	0	91	24	0	0	360	120	54	145	319	41	2,5
Sunflower - Grain [non-irrigated]	2	17	0	0	2,4	1	0,25	0	0	0	0	0	0	121	31	0	0	480	158	61	161	380	100	2,6
Triticale - Grain [non-irrigated]	1	39	0	0	6,6	1	1,2	0	0	1	0,15	0,4	0,13	149	31	0	0	521	151	88	73	312	209	3,4
Triticale - Grain [non-irrigated]	4	39	0	0	3,6	0,7	1,2	0	0	0,8	0,15	0	0	81	17	0	0	284	82	58	60	200	84	2,8
Triticale - Grain [non-irrigated]	3	39	0	0	4,6	0,7	1,2	0	0	0,8	0,15	0	0	104	21	0	0	363	105	58	64	227	136	3
Triticale - Grain [non-irrigated]	2	39	0	0	6	0,9	1,2	0	0	0,8	0,15	0,3	0,13	135	28	0	0	474	137	74	70	281	193	3,3
CASTILLA Y LEÓN [ES]																								
Alfalfa - Fodder [irrigated]	2	1	0	0	13	2	1	0	0	0	0	0	0	5	40	7	8000	1493,7	18,82	45,02	264,46	328,3	1165,4	41,4
Alfalfa - Fodder [irrigated]	1	1	0	0	13	2	1	0	0	0	0	0	0	5	40	7	8000	1493,7	18,82	45,02	264,46	328,3	1165,4	41,4
Barley, spring - Grain [irrigated]	2	3	0	0	4,26	2	1,5	0	0	1	0,75	0	0	95	60	2	2000	512,15	99,8	11,38	123,46	234,64	277,51	19
Barley, spring - Grain [irrigated]	1	3	0	0	4,26	2	1,5	0	0	1	0,75	0	0	95	60	2	2000	512,15	99,8	11,38	123,46	234,64	277,51	19
Barley, spring - Grain [non-irrigated]	2	3	0	0	2,55	2	1,5	0	0	1	0,75	0	0	90	59	0	0	306,16	99,77	11,36	41,58	152,71	153,45	10,05
Barley, spring - Grain [non-irrigated]	1	3	0	0	2,55	2	1,5	0	0	1	0,75	0	0	90	59	0	0	306,16	99,77	11,36	41,58	152,71	153,45	10,05
Beet, sugar - Sugar [irrigated]	2	10	0	0	75,23	2	2	1	15	1	2,5	0	0	185	90	6	6000	3841,09	315,02	313,53	871,63	1500,18	2340,91	41
Beet, sugar - Sugar [irrigated]	1	10	0	0	75,23	2	2	1	15	1	2,5	0	0	185	90	6	6000	3841,09	315,02	313,53	871,63	1500,18	2340,91	41
Carrot - Root [irrigated]	2	20	0	0	45,5	2	1	0	0	0	0	0	0	150	66	7	6500	9131,85	248,63	275,88	1093,19	1617,7	7514,15	150
Carrot - Root [irrigated]	1	20	0	0	45,5	2	1	0	0	0	0	0	0	150	66	7	6500	9131,85	248,63	275,88	1093,19	1617,7	7514,15	150
Chickpea - Grain [non-irrigated]	1	5	0	0	0,74	1	1,5	1	0,5	0	0	0	0	10	10	0	0	561,3	39,78	16,23	117,85	173,86	387,44	9,35
Grape, wine - Fruit - third period [non-irrigated]	1	1	0	0	3,31	1	1	1	1	1	1	0	0	15	10	0	0	1462,24	69,41	107,82	297,21	474,44	987,8	110
Lentil - Grain [non-irrigated]	1	16	0	0	0,69	0	0	1	0,2	0	0	0	0	10	10	0	0	307,78	9,2	54,6	83,28	147,08	160,7	16
Maize - Grain [irrigated]	2	19	0	0	9,1	2	1,5	1	10	1	2	0	0	270	105	7	7000	1264,64	254,65	32,95	507,09	794,69	469,95	37,8
Maize - Grain [irrigated]	1	19	0	0	9,1	2	1,5	1	10	1	2	0	0	270	105	7	7000	1264,64	254,65	32,95	507,09	794,69	469,95	37,8
Oat - Grain [non-irrigated]	1	40	0	0	1,92	1	1,5	0	0	0	0	0	0	70	50	0	0	235,74	70,9	6,03	25,06	101,99	133,75	10,05
Pea - Grain [irrigated]	2	19	0	0	1,66	0	0	1	0,15	0	0	0	0	12	10	6	6000	341,85	5,16	18,56	85,47	109,19	232,66	25
Pea - Grain [irrigated]	1	19	0	0	1,66	0	0	1	0,15	0	0	0	0	12	10	6	6000	341,85	5,16	18,56	85,47	109,19	232,66	25
Pea - Grain [non-irrigated]	1	19	0	0	0,93	0	0	1	0,15	0	0	0	0	10	10	0	0	192,6	7,24	22,71	45,11	75,06	117,54	16

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Potato - Root [irrigated]	2	14	0	0	38,87	3	1	1	0,3	0	0	0	0	160	86	6	6000	6948,76	255,82	205,47	1406,82	1868,11	5080,65	80
Potato - Root [irrigated]	1	14	0	0	38,87	3	1	1	0,3	0	0	0	0	160	86	6	6000	6948,76	255,82	205,47	1406,82	1868,11	5080,65	80
Rye - Grain [non-irrigated]	1	40	0	0	1,58	1	1,5	0	0	0	0	0	0	70	50	0	0	188,38	68,42	2,64	25,12	96,18	92,2	10,05
Soft wheat, winter - Grain [irrigated]	2	42	0	0	3,77	2	1,5	1	0,5	1	0,75	0	0	110	70	2	2000	634,47	109,07	8,41	152,02	269,5	364,97	19
Soft wheat, winter - Grain [irrigated]	1	42	0	0	4,62	2	1,5	1	0,5	1	0,75	0	0	110	70	2	2000	634,47	109,07	8,41	152,02	269,5	364,97	19
Soft wheat, winter - Grain [non-irrigated]	2	42	0	0	2,89	2	1,5	1	0,5	1	0,75	0	0	95	69	0	0	397,61	87,93	9,96	45,41	143,3	254,31	10,05
Soft wheat, winter - Grain [non-irrigated]	1	42	0	0	2,89	2	1,5	1	0,5	1	0,75	0	0	95	69	0	0	397,61	87,93	9,96	45,41	143,3	254,31	10,05
Sunflower - Grain [irrigated]	2	18	0	0	1,04	1	1,5	0	0	0	0	0	0	25	12	3	2500	410,57	28	18,58	107,41	153,99	256,58	15
Sunflower - Grain [irrigated]	1	18	0	0	1,78	1	1,5	0	0	0	0	0	0	25	12	3	2500	410,57	28	18,58	107,41	153,99	256,58	15
Sunflower - Grain [non-irrigated]	2	18	0	0	0,79	1	1,5	0	0	0	0	0	0	15	12	0	0	183,04	3,49	6,03	30,1	39,62	143,42	8,85
Sunflower - Grain [non-irrigated]	1	18	0	0	0,79	1	1,5	0	0	0	0	0	0	15	12	0	0	183,04	3,49	6,03	30,1	39,62	143,42	8,85
CHAMPAGNE-ARDENNE [FR]																								
Barley, spring - Grain [non-irrigated]	1	10	0	0	4,9	1,6	0,48	0	0	1,5	0,45	0,2	0,06	130	45	0	0	588	98	80	57	235	353	9
Barley, spring - Grain [non-irrigated]	2	9	0	0	6,9	1,3	0,39	0,4	0,03	2,2	0,66	1,2	0,36	152	80	0	0	828	128	94	66	288	540	9
Barley, winter - Grain [non-irrigated]	1	41	0	0	6,8	1,5	0,45	0,5	0,04	1,6	0,48	0,8	0,4	155	55	0	0	646	125	105	60	290	356	11
Barley, winter - Grain [non-irrigated]	2	41	0	0	8	1,6	0,48	0,5	0,04	2,2	0,66	1,7	0,77	172	100	0	0	760	155	144	68	367	393	11
Beet, sugar- Sugar [non-irrigated]	2	14	0	0	78	4,2	2,3	2,5	0,2	1,9	0,36	0	0	120	125	0	0	2652	247	192	238	677	1975	21
Durum wheat, winter - Seed [non-irrigated]	1	41	0	0	6,8	1,7	0,15	0,5	0,04	2	0,6	0,9	0,9	180	55	0	0	707	125	112	52	289	418	11
Durum wheat, winter - Seed [non-irrigated]	2	42	0	0	9	1,7	0,15	1,2	0,1	3,2	0,96	1,7	1,7	230	85	0	0	936	165	159	68	392	544	11
Fallow Land [non-irrigated]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33
Fallow Land [non-irrigated]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33
Rape - Grain [non-irrigated]	1	34	0	0	2,8	2	1,3	2,3	0,18	0,9	0,59	0,4	0,18	193	75	0	0	568	145	183	37	365	203	12
Rape - Grain [non-irrigated]	2	35	0	0	3,5	1,7	1,1	2,6	0,21	1,4	0,91	0,7	0,32	213	126	0	0	711	190	188	42	420	291	12
DANMARK [DK]																								
Alfalfa - Fodder [non-irrigated]	1	14	1	3	10,5	0	0	0	0	0	0	0	0	0	31	0	0	420	143	0	76	219	201	0,6
Alfalfa - Fodder [non-irrigated]	2	14	1	3	9	0	0	0	0	0	0	0	0	0	25	0	0	270	121	0	76	197	73	0,6
Barley, spring - Grain [non-irrigated]	1	14	0	0	5,8	2	0,52	2	0,02	2	0,18	0	0	123	22	0	0	729	146	34	48	228	501	5,5
Barley, spring - Grain [non-irrigated]	2	14	0	0	4	2	0,52	2	0,02	2	0,18	0	0	122	15	0	0	520	129	34	48	211	309	4,8
Barley, winter - Grain [non-irrigated]	1	39	0	0	7	2	0,52	0	0	2	0,26	0	0	150	23	0	0	714	169	46	54	269	445	5,5
Barley, winter - Grain [non-irrigated]	2	39	0	0	4,7	2	0,52	0	0	2	0,26	0	0	156	18	0	0	604	162	46	54	262	342	4,7
Beet, sugar - Fodder [non-irrigated]	1	15	0	0	72,2	3	1,89	3	0,03	0	0	0	0	172	40	0	0	1588	318	242	177	737	851	8,6
Beet, sugar - Fodder [non-irrigated]	2	15	0	0	55,6	3	1,89	3	0,03	0	0	0	0	177	34	0	0	1223	264	242	173	679	544	7,7
Beet, sugar- Sugar [non-irrigated]	1	14	0	0	59,8	4	1,63	4	0,01	4	0,1	0	0	104	34	0	0	6877	168	221	595	984	5893	8,5

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Grass ley, one year - Seed [irrigated]	1	15	0	0	1,5	1	1,04	0	0	0	0	0	0	145	17	2	750	1175	173	39	352	564	611	7,1
Grass ley, one year - Seed [irrigated]	2	15	0	0	1,2	1	1,04	0	0	0	0	0	0	145	15	2	750	965	167	39	326	532	433	6,6
Grass, permanent pasture - Fresh [non-irrigated]	1	0	0	0	15,6	0	0	0	0	0	0	0	0	80	5	0	0	296	83	0	20	103	193	1
Grass, permanent pasture - Fresh [non-irrigated]	3	0	0	0	7,5	0	0	0	0	0	0	0	0	0	0	0	0	143	0	0	20	20	123	0,2
Grass, permanent pasture - Fresh [non-irrigated]	2	0	0	0	10	0	0	0	0	0	0	0	0	80	5	0	0	190	83	0	20	103	87	1
Grass, temporary (less than four years) - Silage [non-irrigated]	1	15	1	2	50	0	0	0	0	0	0	0	0	236	37	0	0	1050	343	0	96	439	611	7,2
Grass, temporary (less than four years) - Silage [non-irrigated]	2	15	1	2	44,1	0	0	0	0	0	0	0	0	227	32	0	0	926	315	0	90	405	521	6,6
Maize, Fodder - Fodder [irrigated]	2	18	0	0	9,4	2	0,81	2	0,06	0	0	0	0	146	42	2	700	1208	215	65	395	675	533	7,6
Maize, Fodder - Fodder [non-irrigated]	1	18	0	0	9,4	2	0,81	2	0,06	0	0	0	0	146	42	0	0	1208	215	65	203	483	725	6,8
Maize, Fodder - Fodder [non-irrigated]	2	18	0	0	7,6	2	0,81	2	0,06	0	0	0	0	129	33	0	0	977	172	65	192	429	548	6
Oat - Fodder [non-irrigated]	1	17	0	0	5,5	1	0,35	1	0,02	1	0,08	0	0	96	25	0	0	676	134	20	52	206	470	5,3
Oat - Fodder [non-irrigated]	2	17	0	0	4,3	1	0,35	1	0,02	1	0,08	0	0	95	18	0	0	534	117	20	52	189	345	4,8
Pea - Fodder[non-irrigated]	1	14	0	0	4,5	2	1,3	2	0,04	2	0,05	0	0	0	23	0	0	681	58	61	75	194	487	6,2
Pea - Fodder[non-irrigated]	2	14	0	0	3	2	1,3	2	0,04	2	0,05	0	0	0	16	0	0	474	41	61	75	177	297	5,1
Potato - Root [irrigated]	2	15	0	0	47,8	8	0,81	8	0,01	8	7,5	0	0	186	30	3	1000	2739	315	276	1055	1646	1093	17,3
Rape - Seed [non-irrigated]	1	35	0	0	3,6	3	0,44	3	0,05	3	0,08	0	0	175	22	0	0	916	189	47	97	333	583	6,9
Rape - Seed [non-irrigated]	2	35	0	0	2,3	3	0,44	3	0,05	3	0,08	0	0	157	15	0	0	604	159	47	90	276	328	5,9
Rye - Grain [non-irrigated]	2	39	0	0	4,1	2	0,52	2	0,01	2	0,05	0	0	115	15	0	0	517	130	28	29	187	380	5,1
Soft wheat, winter - Grain [non-irrigated]	1	37	0	0	8	3	0,7	3	0,01	3	0,34	0	0	169	25	0	0	1008	197	67	52	316	692	6,8
Soft wheat, winter - Grain [non-irrigated]	2	37	0	0	4,8	3	0,7	3	0,01	3	0,34	0	0	157	16	0	0	627	163	67	52	282	345	5,5
Triticale - Fodder [non-irrigated]	1	37	0	0	6	2	0,52	2	0,01	2	0,16	0	0	138	28	0	0	730	177	39	55	271	459	6,3
Triticale - Fodder [non-irrigated]	2	37	0	0	4	2	0,52	2	0,01	2	0,16	0	0	138	19	0	0	508	154	39	55	248	260	5,2
EASTERN SCOTLAND [UK]																								
Barley, spring - Fodder [non-irrigated]	1	10	0	0	18	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	74,53	271,81	-271,81	20
Barley, spring - Fodder [non-irrigated]	2	10	0	0	25	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	78,92	276,2	-276,2	20
Barley, spring - Fodder [non-irrigated]	4	10	0	0	35	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	84,76	282,04	-282,04	20
Barley, spring - Grain [non-irrigated]	1	10	0	0	4	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	862,19	131,52	86,22	109,6	327,34	534,85	20
Barley, spring - Grain [non-irrigated]	2	10	0	0	5,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1184,42	131,52	86,22	113,99	331,73	852,7	20
Barley, spring - Grain [non-irrigated]	4	10	0	0	7,5	1,3	0,99	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1615,5	131,52	86,22	119,83	37,57	1277,9	20
Barley, spring - Seed [non-irrigated]	1	10	0	0	4	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	745,29	1314,52	86,22	109,6	327,34	417,95	20

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Barley, spring - Seed [non-irrigated]	2	10	0	0	5,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1023,67	131,52	86,22	113,99	331,73	691,94	20
Barley, spring - Seed [non-irrigated]	4	10	0	0	7,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1396,3	132,52	86,22	119,83	37,57	1058,7	20
Barley, winter - Grain [non-irrigated]	1	37	0	0	6	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1293,3	195,82	87,68	127,14	410,64	882,65	20
Barley, winter - Grain [non-irrigated]	2	37	0	0	7,5	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1615,52	195,82	87,68	131,52	415,02	1200,5	20
Barley, winter - Grain [non-irrigated]	4	37	0	0	9	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1942,1	195,82	87,68	135,91	419,41	1522,7	20
Barley, winter - Seed [non-irrigated]	1	37	0	0	6	1,5	1	0,3	0,17	3,5	1,2	2	0,9	180	70	0	0	1117,9	195,82	87,68	127,14	410,64	707,3	20
Barley, winter - Seed [non-irrigated]	2	37	0	0	7,5	2	2,5	0,3	0,17	2	1,5	2	0,9	180	70	0	0	1396,32	195,82	87,68	131,52	415,02	981,3	20
Barley, winter - Seed [non-irrigated]	4	37	0	0	9	2	0,3	0,3	0,17	2	1,5	2	0,9	180	70	0	0	1679,1	195,82	87,68	135,91	419,41	1259,7	20
Bean - Grain [non-irrigated]	1	10	0	0	2,5	1,5	0,96	1	0,12	3,5	3,64	0	0	0	40	0	0	493,21	45,3	132,98	222,13	400,41	92,79	10
Bean - Grain [non-irrigated]	2	10	0	0	5	1,5	0,96	1	0,12	3,5	3,64	0	0	0	40	0	0	986,41	45,3	132,98	226,51	404,79	581,62	10
Bean - Grain [non-irrigated]	4	10	0	0	6	1,5	0,96	1	0,12	3,5	3,64	0	0	0	40	0	0	1183,7	45,3	132,98	232,35	410,64	773,05	10
Beet and Turnip - Fodder [non-irrigated]	1	12	0	0	60	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	42,38	254,27	-254,27	20
Beet and Turnip - Fodder [non-irrigated]	2	12	0	0	75	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	46,76	258,66	-258,66	20
Beet and Turnip - Fodder [non-irrigated]	4	12	0	0	100	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	52,61	264,5	-264,5	20
Carrot - Root [non-irrigated]	4	14	0	0	65	3	4,1	3	0,34	3,5	2,33	0,02	0,07	50	125	0	0	11399	175,36	1248	6441,6	7865	3533,5	20
Grass, permanent pasture - Fresh [non-irrigated]	1	0	12	40	8,4	0,5	0,3	0	0	0	0	0	0	125	30	0	0	0	116,91	16,1	40,92	173,9	-173,9	4
Grass, permanent pasture - Fresh [non-irrigated]	2	0	12	40	10,1	0,5	0,3	0	0	0	0	0	0	250	50	0	0	0	223,59	16,1	40,92	280,6	-280,6	4
Grass, permanent pasture - Fresh [non-irrigated]	3	0	12	40	7,1	0,5	0,3	0	0	0	0	0	0	75	30	0	0	0	81,84	16,1	40,92	138,34	-138,34	4
Grass, permanent pasture - Hay [non-irrigated]	1	0	12	40	7	0,5	0,3	0	0	0	0	0	0	125	40	0	0	664,91	134,44	16	46,8	197,28	467,63	20
Grass, permanent pasture - Hay [non-irrigated]	2	0	12	40	8	0,5	0,3	0	0	0	0	0	0	200	50	0	0	759,9	200,2	16	46,8	263,04	496,86	20
Grass, permanent pasture - Hay [non-irrigated]	3	0	12	40	6	0,5	0,3	0	0	0	0	0	0	70	70	0	0	569,93	119,83	16	46,8	182,67	387,26	20
Grass, permanent pasture - Silage [non-irrigated]	1	0	12	40	31	0,5	0,3	0	0	0	0	0	0	220	65	0	0	770,13	235,3	27,8	47	310,05	460,08	20
Grass, permanent pasture - Silage [non-irrigated]	2	0	12	40	38	0,5	0,3	0	0	0	0	0	0	275	90	0	0	944,03	303,96	27,8	47	378,73	565,3	20
Grass, permanent pasture - Silage [non-irrigated]	3	0	12	40	20	0,5	0,3	0	0	0	0	0	0	125	40	0	0	496,86	134,44	27,8	47	202,64	294,22	20
Grass, temporary (less than four years) - Fresh [non-irrigated]	1	0	12	40	8,4	0,5	0,3	0	0	0	0	0	0	125	30	0	0	675,14	116,91	16,1	40,92	173,9	501,24	4
Grass, temporary (less than four years)	2	0	12	40	10,1	0,5	0,3	0	0	0	0	0	0	250	50	0	0	811,78	223,59	16,1	40,92	280,6	531,2	4

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
- Fresh [non-irrigated]																								
Grass, temporary (less than four years) - Fresh [non-irrigated]	3	0	12	40	7,1	0,5	0,3	0	0	0	0	0	0	75	30	0	0	570,66	81,84	16,1	40,92	138,3	432,32	4
Grass, temporary (less than four years) - Hay [non-irrigated]	1	0	12	40	7	0,5	0,3	0	0	0	0	0	0	125	40	0	0	664,91	134,44	16,1	46,8	197,28	467,63	19
Grass, temporary (less than four years) - Hay [non-irrigated]	2	0	12	40	8	0,5	0,3	0	0	0	0	0	0	200	50	0	0	759,9	200,21	16,1	46,8	263,04	496,86	20
Grass, temporary (less than four years) - Hay [non-irrigated]	3	0	12	40	6	0,5	0,3	0	0	0	0	0	0	70	70	0	0	569,93	19,83	16,1	46,8	182,67	387,26	20
Grass, temporary (less than four years) - Silage [non-irrigated]	1	0	12	40	31	0,5	0,3	0	0	0	0	0	0	220	65	0	0	770,13	235,28	27,8	47	310	460,08	20
Grass, temporary (less than four years) - Silage [non-irrigated]	2	0	12	40	38	0,5	0,3	0	0	0	0	0	0	275	90	0	0	944,03	303,96	27,8	47	202,64	565,3	20
Grass, temporary (less than four years) - Silage [non-irrigated]	3	0	12	40	20	0,5	0,3	0	0	0	0	0	0	125	40	0	0	496,86	134,44	27,8	47	378,7	294,22	20
Oat - Grain [non-irrigated]	1	10	0	0	3,5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	690,49	119,83	77,45	115,45	312,73	377,76	20
Oat - Grain [non-irrigated]	2	10	0	0	5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	987,14	119,83	77,45	119,83	317,11	670,03	20
Oat - Grain [non-irrigated]	4	10	0	0	6,5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	1278,7	19,83	77,45	125,68	322,96	955,72	20
Pea - Grain [non-irrigated]	1	10	0	0	2,5	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	493,21	51,15	96,45	210,43	358,03	135,18	10
Pea - Grain [non-irrigated]	2	10	0	0	4	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	789,13	51,15	96,45	210,43	358,03	431,1	10
Pea - Grain [non-irrigated]	4	10	0	0	5,5	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	1085	51,15	96,45	210,43	358,03	727,02	10
Potato - Root [non-irrigated]	2	18	0	0	41	2	5,5	75	11,8	0,26	7,5	6,42	0,05	0,13	150	0	0	5180,5	343,42	476,4	2449,22	3269,03	1911,44	105
Potato - Root [non-irrigated]	4	18	0	0	50	2	5,5	75	11,8	0,26	7,5	6,42	0,05	0,13	150	0	0	6320,3	343,42	476,4	2455,1	3274,9	3045,4	105
Potato - Seed [non-irrigated]	4	18	0	0	22	4	73	5	0,83	7,5	6,67	0	0	90	200	0	0	4924,7	246,97	593,31	2649,4	3489,7	1435	105
Rape - Grain [non-irrigated]	1	33	0	0	3	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	811,05	185,59	122,75	135,91	444,25	366,8	15
Rape - Grain [non-irrigated]	2	33	0	0	4	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	1081,4	185,59	122,75	140,29	48,63	632,76	15
Rape - Grain [non-irrigated]	4	33	0	0	5	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	1351,7	185,59	122,75	146,13	454,48	897,27	15
Soft wheat, spring - Grain [non-irrigated]	1	10	0	0	4,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	941,11	168	121,29	124,21	413,56	527,55	20
Soft wheat, spring - Grain [non-irrigated]	2	10	0	0	6,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	1359,78	168	121,29	128,6	417,95	941,84	20
Soft wheat, spring - Grain [non-irrigated]	4	10	0	0	8,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	1778,5	168	121,29	132,98	423,33	1356,81	20
Soft wheat, winter - Grain [non-irrigated]	1	39	0	0	6	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1361,2	208,97	134,44	172,44	515,86	845,39	20
Soft wheat, winter - Grain [non-irrigated]	2	39	0	0	8	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1814,99	208,97	134,44	178,28	521,7	1293,3	20
Soft wheat, winter - Grain [non-irrigated]	4	39	0	0	10	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	2268,7	208,97	134,44	182,67	526,09	1742,7	20

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumb	PestGrowthRegulationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Soft wheat, winter - Seed [non-irrigated]	1	39	0	0	6	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1150,8	208,97	134,44	172,44	515,86	634,96	20
Soft wheat, winter - Seed [non-irrigated]	2	39	0	0	8	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1534,4	208,97	134,44	178,28	521,7	1012,71	20
Soft wheat, winter - Seed [non-irrigated]	4	39	0	0	10	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1918	208,97	134,44	182,67	526,09	1391,9	20
EMILIA-ROMAGNA [IT]																								
Alfalfa - Fodder [irrigated]	3	10	1	4	10	1	1,5	1	0,5	0	0	0	0	80	150	3	2000	1188	94	66	175	335	853	7
Barley, winter - Grain [non-irrigated]	1	43	0	0	3,8	2	0,8	0	0	0	0	0	0	100	60	0	0	528,2	108	14,3	76,8	199,1	329,2	7
Barley, winter - Grain [non-irrigated]	2	44	0	0	4,4	2	0,8	0	0	0	0	0	0	100	65	0	0	611,6	108	14,3	76,8	199,1	412,6	7
Barley, winter - Grain [non-irrigated]	3	44	0	0	5,4	2	0,8	0	0	0	0	0	0	100	80	0	0	752	108	14,3	76,8	199,1	553,5	5
Beet, sugar - Sugar [irrigated]	3	8,5	0	0	52,3	5	5,7	0	0	0	0	0	0	115	90	2	600	2614	101,5	208,6	211,2	521,3	2092,7	12
Beet, sugar- Sugar [non-irrigated]	2	10	0	0	44,8	5	5,7	0	0	0	0	0	0	100	80	0	0	2240	101,5	208,6	186,2	496,3	1743,7	14
Maize - Grain [irrigated]	3	13	0	0	9,6	2	2,3	1	7,5	0	0	0	0	200	100	4	1200	1286,4	111	60	212	383	903,4	10
Maize - Grain [non-irrigated]	2	14	0	0	8	2	2,3	1	7,5	0	0	0	0	150	80	0	0	1072	111	60	162	333	739	12
Soft wheat, winter - Grain [non-irrigated]	1	41	0	0	3,3	3	0,8	0	0	3	1,2	0	0	130	80	0	0	557,7	108	56,8	92	256,8	301	8
Soft wheat, winter - Grain [non-irrigated]	2	42	0	0	4,2	3	0,8	0	0	3	1,2	0	0	150	70	0	0	709,8	108	56,8	92	256	453,1	8
Soft wheat, winter - Grain [non-irrigated]	3	43	0	0	5,4	3	0,8	0	0	3	1,2	0	0	170	70	0	0	912,6	108	56,8	92	256,8	655,9	6
Sorghum - Grain [non-irrigated]	2	18	0	0	6,4	1	2,3	0	0	0	0	0	0	100	80	0	0	800	139,6	8,3	79,2	227	573	9
Sorghum - Grain [non-irrigated]	3	17	0	0	7,8	1	2,3	0	0	0	0	0	0	110	90	0	0	975	139,6	8,3	79,2	227	748	7
Soybean - Grain [non-irrigated]	2	17	0	0	2,7	2	2,8	1	0,5	0	0	0	0	80	60	0	0	624,5	66,7	120,7	75,3	262,7	361,8	12
Soybean - Grain [non-irrigated]	3	16	0	0	4	2	2,8	1	0,5	0	0	0	0	100	80	0	0	925,2	66,7	120	75,3	262,7	662,5	10,5
Sunflower - Grain [non-irrigated]	2	14	0	0	2,1	1	3	0	0	0	0	0	0	90	80	0	0	509,9	73	56,1	44	173,1	336,8	12
Sunflower - Grain [non-irrigated]	3	13	0	0	2,9	1	3	0	0	0	0	0	0	100	90	0	0	704,1	73	56,1	44	173,1	531	10
ESZAK-MAGYARORSZAG [HU]																								
Alfalfa - Fodder [non-irrigated]	1	10	0	0	1,26	1	1	0	0	0	0	0	0	66,6	43	0	0	152	143	39	74	256	-104	9,42
Alfalfa - Fodder [non-irrigated]	2	10	0	0	1,46	1	1	0	0	0	0	0	0	66,6	43	0	0	176	143	39	74	256	-80	9,38
Maize - Grain [non-irrigated]	1	13	0	0	5	3	2,3	0	0	0	0	0	0	85	10	0	0	500	48	50	81	180	319	3,38
Maize - Grain [non-irrigated]	2	13	0	0	6	3	2,3	1	0,85	0	0	0	0	110	15	0	0	600	67	57	81	204	395	3,11
Rape - Grain [non-irrigated]	1	33	0	0	1,5	1	0,15	1,5	1,1	0	0	0	0	95	13	0	0	312	68	55	33	156	156	4,06
Rape - Grain [non-irrigated]	2	34	0	0	2,4	1	0,15	2	1,3	0	0	0	0	130	15	0	0	495	98	95	37	226	267	3,98
Soft wheat, winter - Grain [irrigated]	1	39	0	0	4	2	1	0	0	0	0	0	0	121	8,8	0	0	436	68	32	54	153	282	4,4
Soft wheat, winter - Grain [irrigated]	2	39	0	0	5,01	2	1	1	0,3	0	0	0	0	141	14,5	0	0	537	84	29	54	167	369	5,09
Sunflower - Grain [non-irrigated]	1	13	0	0	1,75	2	2,5	0	0	0	0	0	0	67	18	0	0	406	155	37	45	235	170	2,94
Sunflower - Grain [non-irrigated]	2	15	0	0	2,25	2	2,5	0	0	0	0	0	0	85	23	0	0	522	178	37	45	260	265	3,91

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
FLEVOLAND [NL]																								
Beet, sugar- Sugar [non-irrigated]	1	13	0	0	53,1	4	2,42	0	0	0	0	0	0	150	16	0	0	2655	181,2	125	918	1224,2	1430,8	17,8
Beet, sugar- Sugar [non-irrigated]	2	13	0	0	59,3	4	2,42	0	0	0	0	0	0	150	16	0	0	2965	161,25	125	845	1131,25	1833,75	19,9
Beet, sugar- Sugar [non-irrigated]	3	13	0	0	65,5	4	2,42	0	0	0	0	0	0	150	16	0	0	3275	147	125	878	1150	2125	19,6
Maize, Fodder - Fodder [non-irrigated]	1	17	0	0	38,4	1	0,95	0	0	0	0	0	0	185	24	0	0	1152	193	82	823	1098	54	7,1
Maize, Fodder - Fodder [non-irrigated]	2	17	0	0	39,6	1	0,95	0	0	0	0	0	0	185	24	0	0	1188	193	82	823	1098	90	7,1
Maize, Fodder - Fodder [non-irrigated]	3	17	0	0	40,8	1	0,95	0	0	0	0	0	0	185	24	0	0	1224	193	82	823	1098	126	7,1
Onion - Root [non-irrigated]	1	12	0	0	58,4	5	1,28	2	0,15	10	10,7	1	7,13	110	24	0	0	5364	189	580	1389	2158	3206	37,6
Onion - Root [non-irrigated]	2	12	0	0	58,4	5	1,28	2	0,15	10	10,7	1	2,13	110	24	0	0	5364	189	580	1389	2158	3206	37,6
Onion - Root [non-irrigated]	3	12	0	0	58,4	5	1,28	2	0,15	10	10,7	1	2,13	110	24	0	0	5364	189	580	1389	2158	3206	37,6
Potato - Root [non-irrigated]	1	11	0	0	50	3	2,3	2	2,55	17	9,4	0	0	255	4	0	0	4000	225	507	1046	1778	2222	25,8
Potato - Root [non-irrigated]	2	11	0	0	53,4	3	2,3	2	2,55	17	9,4	0	0	255	24	0	0	5340	269	383	1135	1787	3553	27,5
Potato - Root [non-irrigated]	3	11	0	0	56,8	3	2,3	2	2,55	17	9,4	0	0	255	24	0	0	5680	269	383	1135	1787	3893	27,5
Potato - Seed [non-irrigated]	1	10	0	0	21,9	3	5,7	4	0,5	10	8	0	0	125	24	0	0	4161	206	809	1347	2362	1799	71
Potato - Seed [non-irrigated]	2	10	0	0	30,3	3	5,7	4	0,5	10	8	0	0	125	24	0	0	6060	197	1181	2066	3444	2616	90
Potato - Seed [non-irrigated]	3	10	0	0	38,7	3	5,7	4	0,5	10	8	0	0	125	24	0	0	7740	197	1181	2066	3444	2616	90
Soft wheat, spring - Grain [non-irrigated]	1	11	0	0	6,4	1	1,4	1	0,5	1	0,25	1	0,4	140	1,8	0	0	832	134	134	232	500	332	8,5
Soft wheat, spring - Grain [non-irrigated]	2	11	0	0	7,1	1	1,4	1	0,5	1	0,25	1	0,4	140	0	0	0	852	78	194	255	527	325	9,6
Soft wheat, spring - Grain [non-irrigated]	3	11	0	0	7,8	1	1,4	1	0,5	1	0,25	1	0,4	140	0	0	0	936	78	194	255	527	409	9,6
Soft wheat, winter - Grain [non-irrigated]	1	42	0	0	7,6	1	1,15	1	0,1	1	0,25	2	0,58	165	0	0	0	988	140	231	231	602	386	9
Soft wheat, winter - Grain [non-irrigated]	2	42	0	0	8,2	1	1,15	1	0,1	1	0,25	2	0,58	205	0	0	0	1066	113	152	259	524	542	10,7
Soft wheat, winter - Grain [non-irrigated]	3	42	0	0	8,6	1	1,15	1	0,1	1	0,25	2	0,58	205	0	0	0	1118	113	152	259	524	594	10,7
GALICIA [ES]																								
Grape, wine - Fruit - third period [non-irrigated]	1	1	0	0	6,64	1	1	1	1	1	1	0	0	15	20	0	0	2932,9	55	125	167	347	2585,9	145
Maize - Grain [non-irrigated]	1	20	0	0	5,34	2	1	1	1	0	0	0	0	161	71	4	5000	741,49	180	35	240	455	286,49	38
Potato - Root [irrigated]	1	15	0	0	30,75	2	1	1	1	0	0	0	0	149	95	5	6000	5497,6	235	185	993	1413	4084,6	75
Rye - Grain [non-irrigated]	1	40	0	0	2,13	1	1,5	0	0	0	0	0	0	33	40	0	0	254,44	40	8,5	22	70,5	183,94	12
Soft wheat, winter - Grain [non-	1	42	0	0	2,81	1	1,5	0	0	1	1	0	0	70	56	0	0	385,61	80	12	43	135	250,61	12

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
irrigated]																								
HIGHLANDS AND ISLANDS [UK]																								
Barley, spring - Fodder [non-irrigated]	1&2	10	0	0	33	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	84,76	282,04	-282,04	20
Barley, spring - Fodder [non-irrigated]	3	11	0	0	23	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	78,92	276,2	-276,2	20
Barley, spring - Fodder [non-irrigated]	4	12	0	0	16,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	74,53	271,81	-271,81	20
Barley, spring - Grain [non-irrigated]	1&2	10	0	0	7,5	1,3	0,99	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1615,5	131,52	86,22	119,83	37,57	1277,9	20
Barley, spring - Grain [non-irrigated]	3	11	0	0	5,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1184,42	131,52	86,22	113,99	331,73	852,7	20
Barley, spring - Grain [non-irrigated]	4	12	0	0	4	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	862,19	131,52	86,22	109,6	327,34	534,85	20
Barley, spring - Seed [non-irrigated]	1&2	10	0	0	7,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1396,3	132,52	86,22	119,83	37,57	1058,7	20
Barley, spring - Seed [non-irrigated]	3	11	0	0	5,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1023,67	131,52	86,22	113,99	331,73	691,94	20
Barley, spring - Seed [non-irrigated]	4	12	0	0	4	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	745,29	1314,52	86,22	109,6	327,34	417,95	20
Barley, winter - Grain [non-irrigated]	1&2	37	0	0	9	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1942,1	195,82	87,68	135,91	419,41	1522,7	20
Barley, winter - Grain [non-irrigated]	3	37	0	0	7,5	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1615,52	195,82	87,68	131,52	415,02	1200,5	20
Barley, winter - Grain [non-irrigated]	4	38	0	0	6	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1293,3	195,82	87,68	127,14	410,64	882,65	20
Barley, winter - Seed [non-irrigated]	1&2	37	0	0	9	2	0,3	0,3	0,17	2	1,5	2	0,9	180	70	0	0	1679,1	195,82	87,68	135,91	419,41	1259,7	20
Barley, winter - Seed [non-irrigated]	3	37	0	0	7,5	2	2,5	0,3	0,17	2	1,5	2	0,9	180	70	0	0	1396,32	195,82	87,68	131,52	415,02	981,3	20
Barley, winter - Seed [non-irrigated]	4	38	0	0	6	1,5	1	0,3	0,17	3,5	1,2	2	0,9	180	70	0	0	1117,9	195,82	87,68	127,14	410,64	707,3	20
Bean - Grain [non-irrigated]	1&2	10	0	0	6	1,5	0,96	1	0,12	3,5	3,64	0	0	0	40	0	0	1183,7	45,3	132,98	232,35	410,64	773,05	10
Bean - Grain [non-irrigated]	3	10	0	0	5	1,5	0,96	1	0,12	3,5	3,64	0	0	0	40	0	0	986,41	45,3	132,98	226,51	404,79	581,62	10
Bean - Grain [non-irrigated]	4	10	0	0	2,5	1,5	0,96	1	0,12	3,5	3,64	0	0	0	40	0	0	493,21	45,3	132,98	222,13	400,41	92,79	10
Beet and Turnip - Fodder [non-irrigated]	1&2	12	0	0	100	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	52,61	264,5	-264,5	20
Beet and Turnip - Fodder [non-irrigated]	3	13	0	0	75	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	46,76	258,66	-258,66	20
Beet and Turnip - Fodder [non-irrigated]	4	14	0	0	60	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	42,38	254,27	-254,27	20
Carrot - Root [non-irrigated]	1&2	15	0	0	65	3	4,1	3	0,34	3,5	2,33	0,02	0,07	50	125	0	0	11399	175,36	1248	6441,6	7865	3533,5	20
Grass, permanent pasture - Fresh [non-irrigated]	3	0	12	40	10,1	0,5	0,3	0	0	0	0	0	0	250	50	0	0	0	223,59	16,1	40,92	280,6	-280,6	4
Grass, permanent pasture - Fresh [non-irrigated]	4	0	13	40	8,4	0,5	0,3	0	0	0	0	0	0	125	30	0	0	0	116,91	16,1	40,92	173,9	-173,9	4
Grass, permanent pasture - Fresh [non-irrigated]	5	0	14	40	7,1	0,5	0,3	0	0	0	0	0	0	75	30	0	0	0	81,84	16,1	40,92	138,34	-138,34	4
Grass, permanent pasture - Hay [non-irrigated]	3	0	12	40	8	0,5	0,3	0	0	0	0	0	0	200	50	0	0	759,9	200,2	16	46,8	263,04	496,86	20
Grass, permanent pasture - Hay [non-irrigated]	4	0	13	40	7	0,5	0,3	0	0	0	0	0	0	125	40	0	0	664,91	134,44	16	46,8	197,28	467,63	20
Grass, permanent pasture - Hay [non-irrigated]	5	0	14	40	6	0,5	0,3	0	0	0	0	0	0	70	70	0	0	569,93	119,83	16	46,8	182,67	387,26	20

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Grass, permanent pasture - Silage [non-irrigated]	3	0	12	40	38	0,5	0,3	0	0	0	0	0	0	275	90	0	0	944,03	303,96	27,8	47	378,73	565,3	20
Grass, permanent pasture - Silage [non-irrigated]	4	0	13	40	31	0,5	0,3	0	0	0	0	0	0	220	65	0	0	770,13	235,3	27,8	47	310,05	460,08	20
Grass, permanent pasture - Silage [non-irrigated]	5	0	14	40	20	0,5	0,3	0	0	0	0	0	0	125	40	0	0	496,86	134,44	27,8	47	202,64	294,22	20
Grass, temporary (less than four years) - Fresh [non-irrigated]	3	0	12	40	10,1	0,5	0,3	0	0	0	0	0	0	250	50	0	0	811,78	223,59	16,1	40,92	280,6	531,2	4
Grass, temporary (less than four years) - Fresh [non-irrigated]	4	0	13	40	8,4	0,5	0,3	0	0	0	0	0	0	125	30	0	0	675,14	116,91	16,1	40,92	173,9	501,24	4
Grass, temporary (less than four years) - Fresh [non-irrigated]	5	0	14	40	7,1	0,5	0,3	0	0	0	0	0	0	75	30	0	0	570,66	81,84	16,1	40,92	138,3	432,32	4
Grass, temporary (less than four years) - Hay [non-irrigated]	3	0	12	40	8	0,5	0,3	0	0	0	0	0	0	200	50	0	0	759,9	200,21	16,1	46,8	263,04	496,86	20
Grass, temporary (less than four years) - Hay [non-irrigated]	4	0	13	40	7	0,5	0,3	0	0	0	0	0	0	125	40	0	0	664,91	134,44	16,1	46,8	197,28	467,63	19
Grass, temporary (less than four years) - Hay [non-irrigated]	5	0	14	40	6	0,5	0,3	0	0	0	0	0	0	70	70	0	0	569,93	19,83	16,1	46,8	182,67	387,26	20
Grass, temporary (less than four years) - Silage [non-irrigated]	3	0	12	40	38	0,5	0,3	0	0	0	0	0	0	275	90	0	0	944,03	303,96	27,8	47	202,64	565,3	20
Grass, temporary (less than four years) - Silage [non-irrigated]	4	0	13	40	31	0,5	0,3	0	0	0	0	0	0	220	65	0	0	770,13	235,28	27,8	47	310	460,08	20
Grass, temporary (less than four years) - Silage [non-irrigated]	5	0	14	40	20	0,5	0,3	0	0	0	0	0	0	125	40	0	0	496,86	134,44	27,8	47	378,7	294,22	20
Oat - Grain [non-irrigated]	1&2	10	0	0	6,5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	1278,7	19,83	77,45	125,68	322,96	955,72	20
Oat - Grain [non-irrigated]	3	11	0	0	5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	987,14	119,83	77,45	119,83	317,11	670,03	20
Oat - Grain [non-irrigated]	4	12	0	0	3,5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	690,49	119,83	77,45	115,45	312,73	377,76	20
Pea - Grain [non-irrigated]	1&2	12	0	0	5,5	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	1085	51,15	96,45	210,43	358,03	727,02	10
Pea - Grain [non-irrigated]	3	12	0	0	4	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	789,13	51,15	96,45	210,43	358,03	431,1	10
Pea - Grain [non-irrigated]	4	12	0	0	2,5	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	493,21	51,15	96,45	210,43	358,03	135,18	10
Potato - Root [non-irrigated]	1&2	18	0	0	50	2	5,5	75	11,8	0,26	7,5	6,42	0,05	0,13	150	0	0	6320,3	343,42	476,4	2455,1	3274,9	3045,4	105
Potato - Root [non-irrigated]	3	18	0	0	41	2	5,5	75	11,8	0,26	7,5	6,42	0,05	0,13	150	0	0	5180,5	343,42	476,4	2449,22	3269,03	1911,44	105
Potato - Seed [non-irrigated]	1&2	19	0	0	22	4	73	5	0,83	7,5	6,67	0	0	90	200	0	0	4924,7	246,97	593,31	2649,4	3489,7	1435	105
Rape - Grain [non-irrigated]	1&2	33	0	0	5	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	1351,7	185,59	122,75	146,13	454,48	897,27	15
Rape - Grain [non-irrigated]	3	34	0	0	4	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	1081,4	185,59	122,75	140,29	48,63	632,76	15
Rape - Grain [non-irrigated]	4	34	0	0	3	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	811,05	185,59	122,75	135,91	444,25	366,8	15
Soft wheat, spring - Grain [non-irrigated]	1&2	10	0	0	8,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	1778,5	168	121,29	132,98	423,33	1356,81	20
Soft wheat, spring - Grain [non-	3	11	0	0	6,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	1359,78	168	121,29	128,6	417,95	941,84	20

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
irrigated]																								
Soft wheat, spring - Grain [non-irrigated]	4	11	0	0	4,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	941,11	168	121,29	124,21	413,56	527,55	20
Soft wheat, winter - Grain [non-irrigated]	1&2	39	0	0	10	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	2268,7	208,97	134,44	182,67	526,09	1742,7	20
Soft wheat, winter - Grain [non-irrigated]	3	40	0	0	8	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1814,99	208,97	134,44	178,28	521,7	1293,3	20
Soft wheat, winter - Grain [non-irrigated]	4	40	0	0	6	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1361,2	208,97	134,44	172,44	515,86	845,39	20
Soft wheat, winter - Seed [non-irrigated]	1&2	39	0	0	10	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1918	208,97	134,44	182,67	526,09	1391,9	20
Soft wheat, winter - Seed [non-irrigated]	3	40	0	0	8	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1534,4	208,97	134,44	178,28	521,7	1012,71	20
Soft wheat, winter - Seed [non-irrigated]	4	40	0	0	6	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1150,8	208,97	134,44	172,44	515,86	634,96	20
MIDI-PYRÉNÉES [FR]																								
Barley, winter - Grain [non-irrigated]	2	45	0	0	5	1	0,82	1	0,01	1	0,5	1	0,5	140	50	0	0	403,12	98,5	101,5	100,4	340,4	128,33	2,55
Barley, winter - Grain [non-irrigated]	1	45	0	0	5	1	1,4	1	0,01	1	0,7	1	0,5	140	60	0	0	403,12	138,5	101,5	96,6	336,6	132,14	2,55
Durum wheat, winter - Grain [non-irrigated]	2	50	0	0	5	2	0,85	1	0,01	2	0,5	0	0	200	40	0	0	581,79	190	170,92	60,3	421,2	255,28	3,1
Fallow Land [non-irrigated]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33
Fallow Land [non-irrigated]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33
Maize - Grain [irrigated]	2	13	0	0	9,5	1	4,3	1	0,02	0	0	0	0	180	45	5	1600	1137,15	160	123	566,7	855,7	281,45	49,72
Maize - Grain [irrigated]	1	13	0	0	11	1	3,4	1	0,01	0	0	0	0	200	70	6	1800	1316,7	184,9	123,3	551,3	859,5	457,2	58,81
Maize - Grain [non-irrigated]	1	12	0	0	6,5	1	2	1	0,45	0	0	0	0	120	40	0	0	777,8	129	52,2	360,9	542,1	235,69	4,27
Maize, Fodder - Fodder [irrigated]	2	20	0	0	14,5	1	3,4	1	0,01	1	1	0	0	180	70	4	1200	1320	166	123	551	859,5	1120,5	41,1
Maize, Fodder - Fodder [irrigated]	1	20	0	0	16,5	1	3,4	1	0,01	1	1	0	0	200	70	4	1400	1320	184,9	123	551	859,5	1120,5	41,1
Oat - Grain [non-irrigated]	2	44	0	0	3,2	1	1,4	1	0,01	1	0,7	0	0	140	60	0	0	371,94	138,5	101,5	50	290	81,93	2,55
Oat - Grain [non-irrigated]	1	44	0	0	3,2	1	1,4	1	0,01	1	0,7	0	0	140	60	0	0	371,94	138,5	101,5	50	290	81,93	2,55
Pea - Grain [irrigated]	2	49	0	0	3,5	2	2,2	2	0,01	1	1,45	0	0	0	60	1	400	597	52,1	167,4	164,5	384	80,38	12,06
Pea - Grain [irrigated]	1	49	0	0	3,5	2	0,79	2	0,07	1	1,45	0	0	0	60	2	600	597	52,1	167,4	203,7	423,2	41,18	21,15
Pea - Grain [non-irrigated]	2	49	0	0	2,5	2	2,2	2	0,07	1	1,45	0	0	0	60	0	0	398,04	52,1	156,2	157,4	365,7	32,34	2,47
Pea - Grain [non-irrigated]	1	49	0	0	2,5	2	2,2	2	0,07	1	1,45	0	0	0	60	0	0	398,04	52,1	156,2	157,4	365,7	32,34	2,47
Rape - Grain [non-irrigated]	2	35	0	0	3	2	1,24	2	0,43	1	0,45	0	0	180	50	0	0	611,34	184,9	254,1	143,9	582,9	28,43	2,67
Rape - Grain [non-irrigated]	1	35	0	0	3	2	1,2	2	0,2	1	0,5	0	0	180	40	0	0	611,34	184,9	254,1	146	585	26,3	2,67
Soft wheat, winter - Grain [non-irrigated]	2	45	0	0	6,5	2	1	1	0,02	2	0,5	1	0,3	180	30	0	0	639,3	169	155,5	137,3	430,2	325,29	2,9
Soft wheat, winter - Grain [non-irrigated]	1	45	0	0	6	2	1,2	1	0,02	2	0,6	0	0	180	20	0	0	697,38	169	129,55	81,5	380	317,38	2,9

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Soybean - Grain [irrigated]	2	14	0	0	3,3	2	3,96	0	0	1	0,04	0	0	0	50	4	1400	647,8	45,5	171,7	302	519,2	128,55	40,29
Soybean - Grain [irrigated]	1	14	0	0	3,3	2	3,55	1	0,04	1	0,5	0	0	0	50	5	1600	647,8	45,5	171,7	295,3	512,5	135,3	49,38
Soybean - Grain [non-irrigated]	2	14	0	0	2	2	3,96	0	0	1	0,04	0	0	0	40	0	0	392,6	36,4	105,8	155,5	297,7	94,9	3,93
Soybean - Grain [non-irrigated]	1	14	0	0	2	2	3,36	0	0	1	0,04	0	0	0	50	0	0	392,6	25,1	84,1	154,2	263,4	129,2	3,93
Sunflower - Grain [non-irrigated]	2	11	0	0	2,4	1	2,25	1	0,12	1	0,45	0	0	50	40	0	0	511,85	62,6	71,8	159,2	293,6	218,25	3,93
Tobacco - Leaf [non-irrigated]	1	11	0	0	2,5	1	1,25	1	3,6	1	3,9	0	0	0	75	2	1400	11282,5	138,8	400,6	1313,6	1853	9429,5	730
NORTH EASTERN SCOTLAND [UK]																								
Barley, spring - Fodder [non-irrigated]	1&2	10	0	0	35	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	84,76	282,04	-282,04	20
Barley, spring - Fodder [non-irrigated]	3	10	0	0	25	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	78,92	276,2	-276,2	20
Barley, spring - Fodder [non-irrigated]	4	10	0	0	18	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	74,53	271,81	-271,81	20
Barley, spring - Grain [non-irrigated]	1&2	10	0	0	7,5	1,3	0,99	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1615,5	131,52	86,22	119,83	37,57	1277,9	20
Barley, spring - Grain [non-irrigated]	3	10	0	0	5,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1184,42	131,52	86,22	113,99	331,73	852,7	20
Barley, spring - Grain [non-irrigated]	4	10	0	0	4	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	862,19	131,52	86,22	109,6	327,34	534,85	20
Barley, spring - Seed [non-irrigated]	1&2	10	0	0	7,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1396,3	132,52	86,22	119,83	37,57	1058,7	20
Barley, spring - Seed [non-irrigated]	3	10	0	0	5,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1023,67	131,52	86,22	113,99	331,73	691,94	20
Barley, spring - Seed [non-irrigated]	4	10	0	0	4	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	745,29	1314,52	86,22	109,6	327,34	417,95	20
Barley, winter - Grain [non-irrigated]	1&2	37	0	0	9	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1942,1	195,82	87,68	135,91	419,41	1522,7	20
Barley, winter - Grain [non-irrigated]	3	37	0	0	7,5	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1615,52	195,82	87,68	131,52	415,02	1200,5	20
Barley, winter - Grain [non-irrigated]	4	37	0	0	6	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1293,3	195,82	87,68	127,14	410,64	882,65	20
Barley, winter - Seed [non-irrigated]	1&2	37	0	0	9	2	0,3	0,3	0,17	2	1,5	2	0,9	180	70	0	0	1679,1	195,82	87,68	135,91	419,41	1259,7	20
Barley, winter - Seed [non-irrigated]	3	37	0	0	7,5	2	2,5	0,3	0,17	2	1,5	2	0,9	180	70	0	0	1396,32	195,82	87,68	131,52	415,02	981,3	20
Barley, winter - Seed [non-irrigated]	4	37	0	0	6	1,5	1	0,3	0,17	3,5	1,2	2	0,9	180	70	0	0	1117,9	195,82	87,68	127,14	410,64	707,3	20
Beet and Turnip - Fodder [non-irrigated]	1&2	12	0	0	100	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	52,61	264,5	-264,5	20
Beet and Turnip - Fodder [non-irrigated]	3	12	0	0	75	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	46,76	258,66	-258,66	20
Beet and Turnip - Fodder [non-irrigated]	4	12	0	0	60	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	42,38	254,27	-254,27	20
Carrot - Root [non-irrigated]	1&2	13	0	0	65	3	4,1	3	0,34	3,5	2,33	0,02	0,07	50	125	0	0	11399	175,36	1248	6441,6	7865	3533,5	20
Grass, permanent pasture - Fresh [non-irrigated]	3	0	12	40	10,1	0,5	0,3	0	0	0	0	0	0	250	50	0	0	0	223,59	16,1	40,92	280,6	-280,6	4
Grass, permanent pasture - Fresh [non-irrigated]	4	0	12	40	8,4	0,5	0,3	0	0	0	0	0	0	125	30	0	0	0	116,91	16,1	40,92	173,9	-173,9	4
Grass, permanent pasture - Fresh	5	0	12	40	7,1	0,5	0,3	0	0	0	0	0	0	75	30	0	0	0	81,84	16,1	40,92	138,34	-138,34	4

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
[non-irrigated]																								
Grass, permanent pasture - Hay [non-irrigated]	3	0	12	40	8	0,5	0,3	0	0	0	0	0	0	200	50	0	0	759,9	200,2	16	46,8	263,04	496,86	20
Grass, permanent pasture - Hay [non-irrigated]	4	0	12	40	7	0,5	0,3	0	0	0	0	0	0	125	40	0	0	664,91	134,44	16	46,8	197,28	467,63	20
Grass, permanent pasture - Hay [non-irrigated]	5	0	12	40	6	0,5	0,3	0	0	0	0	0	0	70	70	0	0	569,93	119,83	16	46,8	182,67	387,26	20
Grass, permanent pasture - Silage [non-irrigated]	3	0	12	40	38	0,5	0,3	0	0	0	0	0	0	275	90	0	0	944,03	303,96	27,8	47	378,73	565,3	20
Grass, permanent pasture - Silage [non-irrigated]	4	0	12	40	31	0,5	0,3	0	0	0	0	0	0	220	65	0	0	770,13	235,3	27,8	47	310,05	460,08	20
Grass, permanent pasture - Silage [non-irrigated]	5	0	12	40	20	0,5	0,3	0	0	0	0	0	0	125	40	0	0	496,86	134,44	27,8	47	202,64	294,22	20
Grass, temporary (less than four years) - Fresh [non-irrigated]	3	0	12	40	10,1	0,5	0,3	0	0	0	0	0	0	250	50	0	0	811,78	223,59	16,1	40,92	280,6	531,2	4
Grass, temporary (less than four years) - Fresh [non-irrigated]	4	0	12	40	8,4	0,5	0,3	0	0	0	0	0	0	125	30	0	0	675,14	116,91	16,1	40,92	173,9	501,24	4
Grass, temporary (less than four years) - Fresh [non-irrigated]	5	0	12	40	7,1	0,5	0,3	0	0	0	0	0	0	75	30	0	0	570,66	81,84	16,1	40,92	138,3	432,32	4
Grass, temporary (less than four years) - Hay [non-irrigated]	3	0	12	40	8	0,5	0,3	0	0	0	0	0	0	200	50	0	0	759,9	200,21	16,1	46,8	263,04	496,86	20
Grass, temporary (less than four years) - Hay [non-irrigated]	4	0	12	40	7	0,5	0,3	0	0	0	0	0	0	125	40	0	0	664,91	134,44	16,1	46,8	197,28	467,63	19
Grass, temporary (less than four years) - Hay [non-irrigated]	5	0	12	40	6	0,5	0,3	0	0	0	0	0	0	70	70	0	0	569,93	19,83	16,1	46,8	182,67	387,26	20
Grass, temporary (less than four years) - Silage [non-irrigated]	3	0	12	40	38	0,5	0,3	0	0	0	0	0	0	275	90	0	0	944,03	303,96	27,8	47	202,64	565,3	20
Grass, temporary (less than four years) - Silage [non-irrigated]	4	0	12	40	31	0,5	0,3	0	0	0	0	0	0	220	65	0	0	770,13	235,28	27,8	47	310	460,08	20
Grass, temporary (less than four years) - Silage [non-irrigated]	5	0	12	40	20	0,5	0,3	0	0	0	0	0	0	125	40	0	0	496,86	134,44	27,8	47	378,7	294,22	20
Oat - Grain [non-irrigated]	1&2	10	0	0	6,5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	1278,7	19,83	77,45	125,68	322,96	955,72	20
Oat - Grain [non-irrigated]	3	10	0	0	5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	987,14	119,83	77,45	119,83	317,11	670,03	20
Oat - Grain [non-irrigated]	4	10	0	0	3,5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	690,49	119,83	77,45	115,45	312,73	377,76	20
Pea - Grain [non-irrigated]	1&2	10	0	0	5,5	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	1085	51,15	96,45	210,43	358,03	727,02	10
Pea - Grain [non-irrigated]	3	10	0	0	4	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	789,13	51,15	96,45	210,43	358,03	431,1	10
Pea - Grain [non-irrigated]	4	10	0	0	2,5	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	493,21	51,15	96,45	210,43	358,03	135,18	10

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Potato - Root [non-irrigated]	1&2	18	0	0	50	2	5,5	75	11,8	0,26	7,5	6,42	0,05	0,13	150	0	0	6320,3	343,42	476,4	2455,1	3274,9	3045,4	105
Potato - Root [non-irrigated]	3	18	0	0	41	2	5,5	75	11,8	0,26	7,5	6,42	0,05	0,13	150	0	0	5180,5	343,42	476,4	2449,22	3269,03	1911,44	105
Potato - Seed [non-irrigated]	1&2	18	0	0	22	4	73	5	0,83	7,5	6,67	0	0	90	200	0	0	4924,7	246,97	593,31	2649,4	3489,7	1435	105
Rape - Grain [non-irrigated]	1&2	33	0	0	5	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	1351,7	185,59	122,75	146,13	454,48	897,27	15
Rape - Grain [non-irrigated]	3	33	0	0	4	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	1081,4	185,59	122,75	140,29	48,63	632,76	15
Rape - Grain [non-irrigated]	4	33	0	0	3	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	811,05	185,59	122,75	135,91	444,25	366,8	15
Soft wheat, spring - Grain [non-irrigated]	1&2	10	0	0	8,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	1778,5	168	121,29	132,98	423,33	1356,81	20
Soft wheat, spring - Grain [non-irrigated]	3	10	0	0	6,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	1359,78	168	121,29	128,6	417,95	941,84	20
Soft wheat, spring - Grain [non-irrigated]	4	10	0	0	4,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	941,11	168	121,29	124,21	413,56	527,55	20
Soft wheat, winter - Grain [non-irrigated]	1&2	39	0	0	10	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	2268,7	208,97	134,44	182,67	526,09	1742,7	20
Soft wheat, winter - Grain [non-irrigated]	3	39	0	0	8	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1814,99	208,97	134,44	178,28	521,7	1293,3	20
Soft wheat, winter - Grain [non-irrigated]	4	39	0	0	6	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1361,2	208,97	134,44	172,44	515,86	845,39	20
Soft wheat, winter - Seed [non-irrigated]	1&2	39	0	0	10	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1918	208,97	134,44	182,67	526,09	1391,9	20
Soft wheat, winter - Seed [non-irrigated]	3	39	0	0	8	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1534,4	208,97	134,44	178,28	521,7	1012,71	20
Soft wheat, winter - Seed [non-irrigated]	4	39	0	0	6	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1150,8	208,97	134,44	172,44	515,86	634,96	20
NORTHUMBERLAND AND TYNE AND WEAR [UK]																								
Barley, spring - Grain [non-irrigated]	1	12	0	0	7,5	1	1	0	0	2	3	0	0	110	55	0	0	952	111	66	82	259	693	20
Barley, spring - Grain [non-irrigated]	2	12	0	0	5	1	1	0	0	2	3	0	0	110	55	0	0	635	111	66	82	259	376	20
Barley, winter - Grain [non-irrigated]	1	38	0	0	9	2	2,5	0	0	2	3	0	0	180	70	0	0	1026	165	90	94	349	677	20
Barley, winter - Grain [non-irrigated]	2	38	0	0	7,5	2	2,5	0	0	2	3	0	0	180	70	0	0	855	165	90	94	349	506	20
Grass, permanent pasture - Hay [non-irrigated]	3	15	0	0	9	1	3,5	0	0	0	0	0	0	125	40	0	0	270	111	16	22	149	121	4
Grass, temporary (less than four years) - Hay [non-irrigated]	2	15	0	0	11,5	1	3,5	0	0	0	0	0	0	125	40	0	0	345	111	16	22	149	196	4
Grass, temporary (less than four years) - Hay [non-irrigated]	3	15	0	0	9	1	3,5	0	0	0	0	0	0	125	40	0	0	270	111	16	22	149	121	4
Rape - Seed [non-irrigated]	1	35	0	0	4,5	1	1,75	1	0,2	1	1,75	0	0	210	40	0	0	958	159	120	113	392	566	15

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Rape - Seed [non-irrigated]	2	35	0	0	3,5	1	1,75	1	0,2	1	1,75	0	0	210	40	0	0	745	159	120	113	392	353	15
Soft wheat, winter - Grain [non-irrigated]	1	42	0	0	10	2	3	2	0,45	3	3,5	0	0	200	70	0	0	1280	177	142	97	416	864	20
Soft wheat, winter - Grain [non-irrigated]	2	42	0	0	8	2	3	2	0,45	3	3,5	0	0	200	70	0	0	1024	177	142	97	416	608	20
ÖSTRA MELLANSVERIGE [SE]																								
Barley, spring - Fodder [non-irrigated]	2	19	0	0	3,4	1	0,16	0,3	0,06	0,3	0,13	0	0	48	10	0	0	302,01	64,7	29,61	180,29	274,59	27,42	5,5
Barley, spring - Fodder [non-irrigated]	3	18	0	0	4,2	1	0,16	0,3	0,06	0,3	0,13	0	0	64	13	0	0	373,07	85,1	29,61	198,05	312,76	60,31	5,5
Barley, spring - Fodder [non-irrigated]	4	17	0	0	5	1	0,16	0,3	0,06	0,3	0,13	0	0	80	15	0	0	444,13	104,29	29,61	210,11	344,01	100,12	5,5
Grass, temporary (less than four years) - Hay [non-irrigated]	2	36	0	0	5,8	0	0	0	0	0	0	0	0	116	14	0	0	783	186,21	0	172,5	358,71	309,14	14
Grass, temporary (less than four years) - Hay [non-irrigated]	3	36	0	0	6,6	0	0	0	0	0	0	0	0	132	17	0	0	891,1	194,3	0	181,8	376,1	515	14
Grass, temporary (less than four years) - Hay [non-irrigated]	4	36	0	0	7,9	0	0	0	0	0	0	0	0	158	21	0	0	1066	241,34	0	197,04	438,38	628,25	14
Oat - Fodder [non-irrigated]	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oat - Fodder [non-irrigated]	2	19	0	0	3,3	1	0,16	0,6	0,03	0	0	0	0	46	10	0	0	314,84	62,95	17,77	175,79	256,5	58,34	5,5
Oat - Fodder [non-irrigated]	3	18	0	0	3,7	1	0,16	0,4	0,03	0	0	0	0	54	11	0	0	353	72,5	16,89	184,67	274,06	78,94	5,5
Oat - Fodder [non-irrigated]	4	18	0	0	4,4	1	0,16	0,4	0,03	0	0	0	0	68	13	0	0	419,79	89,27	16,89	197,17	303,33	116,46	5,5
Rape - Grain [non-irrigated]	3	19	0	0	1,9	0,5	0,5	2,1	0,03	0,2	0,14	0	0	72	15	0	0	416,72	93,98	56,7	155,94	306,62	110,1	5,4
Rape - Grain [non-irrigated]	4	19	0	0	2,3	0,5	0,5	2,1	0,03	0,2	0,14	0	0	84	17	0	0	504,45	109,33	56,7	166,69	332,72	171,73	5,4
Rye - Grain [non-irrigated]	2	35	0	0	3,7	1	0,83	0,3	0,01	0,8	0,38	1	0,25	54	11	0	0	389,5	74,1	86,8	188,5	349,5	40	6,4
Rye - Grain [non-irrigated]	3	35	0	0	4,2	1	0,83	0,3	0,01	0,7	0,33	1	0,25	64	13	0	0	442,1	88,3	83,2	197,7	369,2	72,9	6,4
Rye - Grain [non-irrigated]	4	35	0	0	5	1	0,83	0,3	0,01	0,7	0,33	1	0,25	80	15	0	0	526,3	110,6	83,2	213,9	407,8	118,5	6,4
Soft wheat, winter - Grain [non-irrigated]	2	35	0	0	5,3	1	0,16	0,5	0,01	1	0,12	0,3	0,14	96	16	0	0	505,65	140,59	94,2	210,55	445,34	60,31	5,6
Soft wheat, winter - Grain [non-irrigated]	3	35	0	0	5,5	1	0,16	0,5	0,06	1	0,12	0,3	0,14	100	16	0	0	524,73	136,86	94,2	213,18	444,24	80,49	5,6
Soft wheat, winter - Grain [non-irrigated]	4	35	0	0	6,6	1	0,16	0,5	0,06	1	0,12	0,3	0,14	122	20	0	0	629,68	149,14	94,2	257,71	501,05	128,63	5,6
PODLASKIE [PL]																								
Barley, spring - Grain [non-irrigated]	4	17	0	0	4,3	1	0,66	0,5	0,06	0,25	0,14	0	0	87	23	0	0	424,63	77,18	15,25	89,75	182,18	242,45	9
Barley, spring - Grain [non-irrigated]	2	17	0	0	3,4	0,9	0,55	0,5	0,02	0,2	0,1	0	0	74	17	0	0	331,5	59,65	13,5	84	157,15	174,35	8,5
Barley, spring - Grain [non-irrigated]	1	17	0	0	2,2	0,7	0,44	0,4	0,02	0	0	0	0	54	8	0	0	209	36,75	8	76,5	121,25	87,75	8
Beet, sugar- Sugar [non-irrigated]	4	17	0	0	36,5	1,3	0,72	0,1	0,02	0,2	0,04	0	0	165	58	0	0	1624,25	141,63	73,25	314,5	529,38	1094,88	26
Cereal, other - Grain [non-irrigated]	4	15	0	0	4,5	0,9	0,22	0,6	0,1	0	0	0	0	85	27	0	0	286,88	67,63	20,25	82,75	170,63	116,25	9
Cereal, other - Grain [non-irrigated]	3	15	0	0	4,3	0,85	0,2	0,4	0,08	0	0	0	0	82	25	0	0	274,13	63,75	19	83,5	166,25	107,88	9
Cereal, other - Grain [non-irrigated]	2	15	0	0	3,4	0,9	0,22	0,4	0,02	0	0	0	0	64	16	0	0	212,5	46,55	14,25	74,5	135,3	77,2	9
Cereal, other - Grain [non-irrigated]	1	15	0	0	2,3	0,7	0,17	0,2	0,01	0	0	0	0	43	9	0	0	138	30,43	12	68,25	108,68	27,33	8

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationApplicationNumb	PestGrowthRegulationApplicationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Grass, permanent pasture - Fresh [non-irrigated]	4	0	1	1	37	0	0	0	0	0	0	0	0	150	50	0	0	0	119,5	0	33	152,5	-152,5	16,98
Grass, permanent pasture - Fresh [non-irrigated]	3	0	1	1	32	0	0	0	0	0	0	0	0	120	40	0	0	0	97,3	0	30	127,3	-127,3	15,6
Grass, permanent pasture - Fresh [non-irrigated]	2	0	1	1	28	0	0	0	0	0	0	0	0	100	32	0	0	0	79,9	0	28,5	108,4	-108,4	14,91
Grass, permanent pasture - Fresh [non-irrigated]	1	0	1	1	20	0	0	0	0	0	0	0	0	70	25	0	0	0	56,5	0	24	80,5	-80,5	12,8
Grass, permanent pasture - Hay [non-irrigated]	4	0	1	1	7,4	0	0	0	0	0	0	0	0	150	50	0	0	0	119,5	0	77	196,5	-196,5	16,76
Grass, permanent pasture - Hay [non-irrigated]	3	0	1	1	6,4	0	0	0	0	0	0	0	0	120	40	0	0	0	97,25	0	70	167,25	-167,25	15,4
Grass, permanent pasture - Hay [non-irrigated]	2	0	1	1	5,6	0	0	0	0	0	0	0	0	100	32	0	0	0	79,9	0	66,5	146,4	-146,4	14,72
Grass, permanent pasture - Hay [non-irrigated]	1	0	1	1	4	0	0	0	0	0	0	0	0	70	25	0	0	0	56,5	0	56	112,5	-112,5	12,68
Grass, permanent pasture - Silage [non-irrigated]	4	0	1	1	25,9	0	0	0	0	0	0	0	0	150	50	0	0	0	119,5	0	110	229,5	-229,5	9,4
Grass, permanent pasture - Silage [non-irrigated]	3	0	1	1	22,4	0	0	0	0	0	0	0	0	120	40	0	0	0	97,3	0	100	197,3	-197,3	8,7
Grass, permanent pasture - Silage [non-irrigated]	2	0	1	1	19,6	0	0	0	0	0	0	0	0	100	32	0	0	0	79,9	0	95	164,9	-164,9	8,4
Grass, permanent pasture - Silage [non-irrigated]	1	0	1	1	14	0	0	0	0	0	0	0	0	70	25	0	0	0	56,5	0	80	136,5	-136,5	7,32
Grass, temporary (less than four years) - Silage [non-irrigated]	4	18	1	1	25,9	0	0	0	0	0	0	0	0	150	50	0	0	0	119,5	0	150	269,5	-269,5	10,9
Grass, temporary (less than four years) - Silage [non-irrigated]	3	18	1	1	22,4	0	0	0	0	0	0	0	0	120	40	0	0	0	97,3	0	140	237,3	-237,3	10,2
Grass, temporary (less than four years) - Silage [non-irrigated]	2	18	1	1	19,6	0	0	0	0	0	0	0	0	100	32	0	0	0	79,9	0	140	219,9	-219,9	8,55
Grass, temporary (less than four years) - Silage [non-irrigated]	1	18	1	1	14	0	0	0	0	0	0	0	0	70	25	0	0	0	56,6	0	110	166,6	-166,6	8,32
Maize, Fodder - Fodder [non-irrigated]	4	18	0	0	45	1,5	0,94	0	0	0	0	0	0	149	38	0	0	0	111,43	43	302	456,43	-456,43	30
Maize, Fodder - Fodder [non-irrigated]	3	18	0	0	48	1,2	0,72	0	0	0	0	0	0	153	49	0	0	0	123,93	47,25	307,5	475,68	-478,68	31
Maize, Fodder - Fodder [non-irrigated]	2	18	0	0	38	1	1,1	0	0	0	0	0	0	137	42	0	0	0	111,88	28,5	282,75	423,13	-423,13	26
Maize, Fodder - Fodder [non-	1	17	0	0	32	0,9	0,55	0	0	0	0	0	0	113	34	0	0	0	89,68	26,5	259	375,18	-375,18	24

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irrigated]																								
Oat - Grain [non-irrigated]	4	15	0	0	4,1	0,5	0,22	0,8	0,05	0	0	0	0	85	21	0	0	281,88	61,58	19	75,75	156,33	125,55	9
Oat - Grain [non-irrigated]	2	15	0	0	3,2	0,1	0,06	0,6	0,02	0	0	0	0	64	10	0	0	216	39,4	10,5	69,5	119,4	96,6	9
Oat - Grain [non-irrigated]	1	14	0	0	2,1	0	0	0,3	0,01	0	0	0	0	39	3	0	0	136,5	20,68	8,25	64,5	93,43	43,08	8
Pea - Grain [non-irrigated]	4	15	0	0	2,4	0,9	0,72	1,5	0,09	0,5	0,18	0	0	25	46	0	0	288	83,08	53	128	264,08	23,93	11
Pea - Grain [non-irrigated]	3	15	0	0	2,5	0,9	0,72	1,5	0,09	0,5	0,18	0	0	32	53	0	0	300	91,75	53	129,25	272	26	12
Pea - Grain [non-irrigated]	2	15	0	0	1,8	0,6	0,55	1,2	0,03	0,2	0,12	0	0	22	33	0	0	216	57,75	31	114,5	200,25	12,75	10
Pea - Grain [non-irrigated]	1	14	0	0	1,3	0,1	0,11	1	0,03	0	0	0	0	12	28	0	0	152,75	45,2	12	105,75	162,95	-10,2	9
Potato - Root [non-irrigated]	4	17	0	0	25	0,3	0,12	1,5	0,06	1,1	0,65	0	0	53	23	0	0	1250	56,18	59	743	858,18	391,83	11
Potato - Root [non-irrigated]	3	17	0	0	23	0,3	0,12	1,5	0,06	1	0,59	0	0	47	21	0	0	1150	51,18	54	741,5	846,68	303,33	12
Potato - Root [non-irrigated]	2	17	0	0	21	0,2	0,11	1,2	0,05	0,9	0,59	0	0	18	23	0	0	1050	39,75	48,5	717,5	805,75	244,25	10
Potato - Root [non-irrigated]	1	17	0	0	15	0	0	1	0,04	0,8	0,59	0	0	12	18	0	0	675	28,7	12	619,75	660,45	14,55	9
Rye - Grain [non-irrigated]	4	36	0	0	3,9	0,7	0,33	0	0	0	0	0,1	0,05	93	22	0	0	287,63	69,53	16,5	94,75	180,78	106,85	12
Rye - Grain [non-irrigated]	2	36	0	0	3,2	0,4	0,17	0	0	0	0	0	0	78	12	0	0	228	47,95	6	86,5	140,45	87,55	11
Rye - Grain [non-irrigated]	1	36	0	0	1,8	0,1	0,06	0	0	0	0	0	0	49	5	0	0	126	26,08	3	78,75	107,83	18,18	10
Soft wheat, winter - Grain [non-irrigated]	4	39	0	0	4,2	1,1	0,44	0,2	0,01	0,4	0,23	0,4	0,44	102	21	0	0	467,25	70,7	35,5	110	216,2	251,05	10
Soft wheat, winter - Grain [non-irrigated]	3	37	0	0	5	1,3	0,5	0,2	0,04	0,55	0,27	0,6	0,55	127	33	0	0	562,5	96,58	46,5	117,25	260,33	302,18	11,3
Soft wheat, winter - Grain [non-irrigated]	2	37	0	0	2,6	0,8	0,39	0,1	0,01	0,1	0,08	0	0	73	12	0	0	260	57,08	25,75	97,5	180,33	79,68	9,5
Triticale - Grain [non-irrigated]	4	37	0	0	5,3	1,2	0,55	0	0	0,2	0,05	0,1	0,03	107	26	0	0	483,63	80,28	26,75	104,25	211,28	272,35	11
Triticale - Grain [non-irrigated]	3	36	0	0	4,9	1,2	0,55	0	0	0,2	0,05	0,1	0,03	112	33	0	0	453,25	89,85	26,75	103	219,6	233,65	11
Triticale - Grain [non-irrigated]	2	37	0	0	3,7	0,8	0,39	0	0	0,1	0,02	0	0	83	18	0	0	333	58,63	18,25	94	170,88	162,13	10
Triticale - Grain [non-irrigated]	1	37	0	0	2,4	0,3	0,22	0	0	0	0	0	0	46	7	0	0	210	31	16,25	86,5	133,75	76,25	9,5
POITOU-CHARENTES [FR]																								
Barley, spring - Grain [irrigated]	1	6	0	0	6,2	1,9	0,25	1,1	0,02	2,2	0,19	1,1	0,47	140	73	2	800	657,2	119	168	84	371	286,2	9
Barley, spring - Grain [irrigated]	2	6	0	0	5,8	1,9	0,25	1,1	0,02	2,2	0,19	1,1	0,47	140	73	2	800	614	110,5	156	78	344,5	269,5	9
Barley, spring - Grain [irrigated]	3	6	0	0	7,2	1,9	0,25	1,1	0,02	2,2	0,19	1,1	0,47	120	73	2	800	763,2	136	192	96	424	339,2	9
Barley, winter - Grain [non-irrigated]	1	43	0	0	7	1,9	0,25	1,1	0,02	2,2	0,19	1,1	0,47	150	73	0	0	742	119	168	84	371	371	2,5
Barley, winter - Grain [non-irrigated]	2	43	0	0	6,5	1,9	0,25	1,1	0,02	2,2	0,19	1,1	0,47	150	73	0	0	689	110,5	156	78	344,5	344,5	2,5
Barley, winter - Grain [non-irrigated]	3	43	0	0	7,5	1,9	0,25	1,1	0,02	2,2	0,19	1,1	0,47	140	73	0	0	795	136	192	96	424	371	2,5
Durum wheat, winter - Grain [non-irrigated]	1	45	0	0	6,2	2	0,5	1,2	0,02	2,5	0,2	1	0,5	170	69	0	0	798,6	105,4	148,8	74,4	328,6	470	3,1
Durum wheat, winter - Grain [non-irrigated]	2	45	0	0	5,8	2	0,5	1,2	0,02	2,5	0,2	1	0,5	170	69	0	0	747	98,6	139,2	69,6	307,4	439,6	3,1
Durum wheat, winter - Grain [non-irrigated]	3	45	0	0	7,2	2	0,5	1,2	0,02	2,5	0,2	1	0,5	190	69	0	0	927,4	122,4	172,8	86,4	381,6	545,8	3,1
Fallow Land [non-irrigated]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumb	PestGrowthRegulationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Fallow Land [non-irrigated]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33
Fallow Land [non-irrigated]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0,33
Maize - Grain [irrigated]	1	17	0	0	11,5	3,6	0,56	0,7	0,15	0	0	0	0	220	82	4	1600	1152,3	207	103,5	230	540,5	611,8	49,72
Maize - Grain [irrigated]	2	17	0	0	11,5	3,6	0,56	0,7	0,15	0	0	0	0	190	82	4	1600	1152,3	193,5	103,5	230	527	625,3	49,72
Maize - Grain [irrigated]	3	17	0	0	10,5	3,6	0,56	0,7	0,15	0	0	0	0	180	82	4	1600	1052,1	189	94,5	210	493,5	558,6	49,72
Maize - Grain [non-irrigated]	1	17	0	0	7	2,8	0,56	0,4	0,15	0	0	0	0	190	81	0	0	701,4	193,5	63	210	466,5	234,9	4,27
Maize - Grain [non-irrigated]	2	17	0	0	7	2,8	0,56	0,4	0,15	0	0	0	0	160	81	0	0	701,4	180	63	210	453	248,4	4,27
Maize - Grain [non-irrigated]	3	17	0	0	8	2,8	0,56	0,4	0,15	0	0	0	0	150	81	0	0	801,6	175,5	72	210	457,5	344	4,27
Pea - Grain [irrigated]	1	5	0	0	4,8	1	2,8	0	0	0	0	0	0	0	129	1	600	622,6	52,1	148,5	222,6	423,2	199,4	11,56
Pea - Grain [irrigated]	2	5	0	0	4,5	1	2,8	0	0	0	0	0	0	0	129	1	600	583,7	52,1	148,5	222,6	423,2	160,5	11,56
Pea - Grain [irrigated]	3	5	0	0	5,5	1	2,8	0	0	0	0	0	0	0	129	1	600	713,4	52,1	148,5	222,6	423,2	290,2	11,56
Pea - Grain [non-irrigated]	1	5	0	0	3,8	2	0,79	1	1,45	0	0	0	0	0	60	0	0	492,9	52,1	156,2	157,4	365,7	127,2	2,47
Pea - Grain [non-irrigated]	2	5	0	0	3	2	0,79	1	1,45	0	0	0	0	0	60	0	0	389	52,1	156,2	157,4	365,7	127,2	2,47
Pea - Grain [non-irrigated]	3	5	0	0	4,5	2	2	1	1,45	0	0	0	0	0	60	0	0	583,7	52,1	220	157,4	429,5	154,2	2,47
Rape - Grain [non-irrigated]	1	36	0	0	3,6	2,1	1,14	2,5	0,03	1,5	0,38	0	0	190	80	0	0	802,8	155	113,7	150,9	419,6	383,2	2,67
Rape - Grain [non-irrigated]	2	36	0	0	3,3	2,1	1,14	2,5	0,03	1,5	0,38	0	0	170	80	0	0	735,9	151,4	113,7	150,9	416	319,9	2,67
Rape - Grain [non-irrigated]	3	36	0	0	4,5	2,1	1,14	2,5	0,03	1,5	0,38	0	0	150	80	0	0	1003,5	140	113,7	150,9	404,6	598,9	2,67
Soft wheat, winter - Grain [non-irrigated]	1	43	0	0	7	2	0,5	1,2	0,02	2,5	0,2	1	0,5	190	69	0	0	724,5	119	168	84	371	353,5	2,9
Soft wheat, winter - Grain [non-irrigated]	2	43	0	0	6,5	2	0,5	1,2	0,02	2,5	0,2	1	0,5	190	69	0	0	672,8	110,5	156	78	344,5	328,3	2,9
Soft wheat, winter - Grain [non-irrigated]	3	43	0	0	8	2	0,5	1,2	0,02	2,5	0,2	1	0,5	190	69	0	0	828	136	192	96	424	404	2,9
Sunflower - Grain [non-irrigated]	1	16	0	0	2,3	2	1,98	0	0	0	0	0	0	50	71	0	0	558,4	62,6	71,8	159,2	293,6	264,8	3,93
Sunflower - Grain [non-irrigated]	2	16	0	0	1,8	2	1,98	0	0	0	0	0	0	60	71	0	0	437	55	71,8	159,2	286	151	3,93
Sunflower - Grain [non-irrigated]	3	16	0	0	3	2	1,98	0	0	0	0	0	0	60	71	0	0	728,4	70	71,8	159,2	301	427,4	3,93
SCHWABEN [DE]																								
Barley, spring - Grain [non-irrigated]	3	15	0	0	5,1	2	4	1	0,15	2	0,25	1	1,44	102,66	18,68	0	0	631	130	77	109	316	315	6,18
Barley, winter - Grain [non-irrigated]	3	37	0	0	5,9	2	4	1	0,15	3	0,25	1	1,44	129,96	21,17	0	0	625	161	110	124	395	230	6,08
Bean - Grain [non-irrigated]	2	13	0	0	3,01	2	2	3	0,15	1	0,5	0	0	2,47	16,25	0	0	354	48	74	186	308	46	5,69
Beet, sugar - Fodder [non-irrigated]	2	13	0	0	84,4	0	0	0	0	0	0	0	0	200	38,25	0	0	0	376	155	186	717	-717	50,3
Beet, sugar- Sugar [non-irrigated]	3	13	0	0	67,75	2	0,38	1	0,01	1	0,13	0	0	158,18	30,55	0	0	2970	253	196	296	745	2225	36,36
Fallow Land [non-irrigated]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	0	3,3
Fallow Land [non-irrigated]	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	0	3,3
Fallow Land [non-irrigated]	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	0	3,3
Fallow Land [non-irrigated]	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	0	0	3,3

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumber	PestGrowthRegulationIngredient	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Maize, pop corn - Grain [non-irrigated]	2	17	0	0	8,99	2	1,08	0	0	0	0	0	0	165,6	32,54	0	0	113,5	213	93	566	872	263	5,4
Oat - Grain [non-irrigated]	2	15	0	0	4,85	2	2	0	0	0	0	1	1,44	103,05	17,53	0	0	475	130	38	82	249	226	5,32
Pea - Grain [non-irrigated]	2	12	0	0	3,52	1	2	2	0,15	0	0	0	0	1,29	29,37	0	0	427	52	70	186	308	119	5,45
Potato - Root [non-irrigated]	1	14	0	0	40,64	2	4	2	0,04	3	0,91	0	0	169,86	25,18	0	0	3963	294	267	700	1261	2702	27,97
Rape - Grain [non-irrigated]	1	34	0	0	3,56	1	0,2	2	0,01	1	0,25	0	0	142,53	27,62	0	0	839	192	107	104	403	436	6,02
Rye - Grain [non-irrigated]	1	39	0	0	5,15	2	4	0	0	2	0,75	1	1,44	106,8	18,43	0	0	551	135	90	89	314	237	5,94
Soft wheat, winter - Grain [non-irrigated]	3	42	0	0	7,09	2	4	1	0,01	3	0,75	1	1,44	157,62	25,52	0	0	830	195	135	114	444	386	6,5
Sunflower - Grain [non-irrigated]	1	14	0	0	2,78	2	2,4	1	0,15	0	0	0	0	103,92	19,01	0	0	677	156	68	151	375	302	5,07
Triticale - Grain [non-irrigated]	2	40	0	0	5,95	3	4	1	0,01	2	0,75	1	1,44	115,46	35,28	0	0	580	163	105	98	366	214	6,39
SOUTH WESTERN SCOTLAND [UK]																								
Barley, spring - Fodder [non-irrigated]	1	10	0	0	18	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	74,53	271,81	-271,81	20
Barley, spring - Fodder [non-irrigated]	2	10	0	0	25	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	78,92	276,2	-276,2	20
Barley, spring - Fodder [non-irrigated]	4	10	0	0	35	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	0	131,52	65,76	84,76	282,04	-282,04	20
Barley, spring - Grain [non-irrigated]	1	10	0	0	4	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	862,19	131,52	86,22	109,6	327,34	534,85	20
Barley, spring - Grain [non-irrigated]	2	10	0	0	5,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1184,42	131,52	86,22	113,99	331,73	852,7	20
Barley, spring - Grain [non-irrigated]	4	10	0	0	7,5	1,3	0,99	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1615,5	131,52	86,22	119,83	37,57	1277,9	20
Barley, spring - Seed [non-irrigated]	1	10	0	0	4	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	745,29	1314,52	86,22	109,6	327,34	417,95	20
Barley, spring - Seed [non-irrigated]	2	10	0	0	5,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1023,67	131,52	86,22	113,99	331,73	691,94	20
Barley, spring - Seed [non-irrigated]	4	10	0	0	7,5	1,3	0,96	0,17	0,01	2,5	0,84	0,05	0,04	110	55	0	0	1396,3	132,52	86,22	119,83	37,57	1058,7	20
Barley, winter - Grain [non-irrigated]	1	37	0	0	6	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1293,3	195,82	87,68	127,14	410,64	882,65	20
Barley, winter - Grain [non-irrigated]	2	37	0	0	7,5	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1615,52	195,82	87,68	131,52	415,02	1200,5	20
Barley, winter - Grain [non-irrigated]	4	37	0	0	9	1,5	1	0,3	0,17	3,5	1,2	2	0,94	145	55	0	0	1942,1	195,82	87,68	135,91	419,41	1522,7	20
Barley, winter - Seed [non-irrigated]	1	37	0	0	6	1,5	1	0,3	0,17	3,5	1,2	2	0,9	180	70	0	0	1117,9	195,82	87,68	127,14	410,64	707,3	20
Barley, winter - Seed [non-irrigated]	2	37	0	0	7,5	2	2,5	0,3	0,17	2	1,5	2	0,9	180	70	0	0	1396,32	195,82	87,68	131,52	415,02	981,3	20
Barley, winter - Seed [non-irrigated]	4	37	0	0	9	2	0,3	0,3	0,17	2	1,5	2	0,9	180	70	0	0	1679,1	195,82	87,68	135,91	419,41	1259,7	20
Beet and Turnip - Fodder [non-irrigated]	1	12	0	0	60	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	42,38	254,27	-254,27	20
Beet and Turnip - Fodder [non-irrigated]	2	12	0	0	75	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	46,76	258,66	-258,66	20
Beet and Turnip - Fodder [non-irrigated]	4	12	0	0	100	1	1,16	0,16	0,04	0,07	0,61	0	0	75	100	0	0	0	153,44	58,45	52,61	264,5	-264,5	20
Carrot - Root [non-irrigated]	4	13	0	0	65	3	4,1	3	0,34	3,5	2,33	0,02	0,07	50	125	0	0	11399	175,36	1248	6441,6	7865	3533,5	20

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumb	PestGrowthRegulationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Grass, permanent pasture - Fresh [non-irrigated]	1	0	12	40	8,4	0,5	0,3	0	0	0	0	0	0	125	30	0	0	0	116,91	16,1	40,92	173,9	-173,9	4
Grass, permanent pasture - Fresh [non-irrigated]	2	0	12	40	10,1	0,5	0,3	0	0	0	0	0	0	250	50	0	0	0	223,59	16,1	40,92	280,6	-280,6	4
Grass, permanent pasture - Fresh [non-irrigated]	3	0	12	40	7,1	0,5	0,3	0	0	0	0	0	0	75	30	0	0	0	81,84	16,1	40,92	138,34	-138,34	4
Grass, permanent pasture - Hay [non-irrigated]	1	0	12	40	7	0,5	0,3	0	0	0	0	0	0	125	40	0	0	664,91	134,44	16	46,8	197,28	467,63	20
Grass, permanent pasture - Hay [non-irrigated]	2	0	12	40	8	0,5	0,3	0	0	0	0	0	0	200	50	0	0	759,9	200,2	16	46,8	263,04	496,86	20
Grass, permanent pasture - Hay [non-irrigated]	3	0	12	40	6	0,5	0,3	0	0	0	0	0	0	70	70	0	0	569,93	119,83	16	46,8	182,67	387,26	20
Grass, permanent pasture - Silage [non-irrigated]	1	0	12	40	31	0,5	0,3	0	0	0	0	0	0	220	65	0	0	770,13	235,3	27,8	47	310,05	460,08	20
Grass, permanent pasture - Silage [non-irrigated]	2	0	12	40	38	0,5	0,3	0	0	0	0	0	0	275	90	0	0	944,03	303,96	27,8	47	378,73	565,3	20
Grass, permanent pasture - Silage [non-irrigated]	3	0	12	40	20	0,5	0,3	0	0	0	0	0	0	125	40	0	0	496,86	134,44	27,8	47	202,64	294,22	20
Grass, temporary (less than four years) - Fresh [non-irrigated]	1	0	12	40	8,4	0,5	0,3	0	0	0	0	0	0	125	30	0	0	675,14	116,91	16,1	40,92	173,9	501,24	4
Grass, temporary (less than four years) - Fresh [non-irrigated]	2	0	12	40	10,1	0,5	0,3	0	0	0	0	0	0	250	50	0	0	811,78	223,59	16,1	40,92	280,6	531,2	4
Grass, temporary (less than four years) - Fresh [non-irrigated]	3	0	12	40	7,1	0,5	0,3	0	0	0	0	0	0	75	30	0	0	570,66	81,84	16,1	40,92	138,3	432,32	4
Grass, temporary (less than four years) - Hay [non-irrigated]	1	0	12	40	7	0,5	0,3	0	0	0	0	0	0	125	40	0	0	664,91	134,44	16,1	46,8	197,28	467,63	19
Grass, temporary (less than four years) - Hay [non-irrigated]	2	0	12	40	8	0,5	0,3	0	0	0	0	0	0	200	50	0	0	759,9	200,21	16,1	46,8	263,04	496,86	20
Grass, temporary (less than four years) - Hay [non-irrigated]	3	0	12	40	6	0,5	0,3	0	0	0	0	0	0	70	70	0	0	569,93	19,83	16,1	46,8	182,67	387,26	20
Grass, temporary (less than four years) - Silage [non-irrigated]	1	0	12	40	31	0,5	0,3	0	0	0	0	0	0	220	65	0	0	770,13	235,28	27,8	47	310	460,08	20
Grass, temporary (less than four years) - Silage [non-irrigated]	2	0	12	40	38	0,5	0,3	0	0	0	0	0	0	275	90	0	0	944,03	303,96	27,8	47	202,64	565,3	20
Grass, temporary (less than four years) - Silage [non-irrigated]	3	0	12	40	20	0,5	0,3	0	0	0	0	0	0	125	40	0	0	496,86	134,44	27,8	47	378,7	294,22	20
Oat - Grain [non-irrigated]	1	10	0	0	3,5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	690,49	119,83	77,45	115,45	312,73	377,76	20
Oat - Grain [non-irrigated]	2	10	0	0	5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	987,14	119,83	77,45	119,83	317,11	670,03	20
Oat - Grain [non-irrigated]	4	10	0	0	6,5	1	0,66	0,1	0,01	2	0,57	1	0,46	100	50	0	0	1278,7	19,83	77,45	125,68	322,96	955,72	20

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumb	PestGrowthRegulationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Pea - Grain [non-irrigated]	1	10	0	0	2,5	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	493,21	51,15	96,45	210,43	358,03	135,18	10
Pea - Grain [non-irrigated]	2	10	0	0	4	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	789,13	51,15	96,45	210,43	358,03	431,1	10
Pea - Grain [non-irrigated]	4	10	0	0	5,5	1,5	1,36	1	0,1	0,5	0,49	0	0	0	50	0	0	1085	51,15	96,45	210,43	358,03	727,02	10
Potato - Root [non-irrigated]	2	18	0	0	41	2	5,5	75	11,8	0,26	7,5	6,42	0,05	0,13	150	0	0	5180,5	343,42	476,4	2449,22	3269,03	1911,44	105
Potato - Root [non-irrigated]	4	18	0	0	50	2	5,5	75	11,8	0,26	7,5	6,42	0,05	0,13	150	0	0	6320,3	343,42	476,4	2455,1	3274,9	3045,4	105
Potato - Seed [non-irrigated]	4	18	0	0	22	4	73	5	0,83	7,5	6,67	0	0	90	200	0	0	4924,7	246,97	593,31	2649,4	3489,7	1435	105
Rape - Grain [non-irrigated]	1	33	0	0	3	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	811,05	185,59	122,75	135,91	444,25	366,8	15
Rape - Grain [non-irrigated]	2	33	0	0	4	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	1081,4	185,59	122,75	140,29	48,63	632,76	15
Rape - Grain [non-irrigated]	4	33	0	0	5	2	0,09	1	0,12	2	2,5	0	0	210	40	0	0	1351,7	185,59	122,75	146,13	454,48	897,27	15
Soft wheat, spring - Grain [non-irrigated]	1	10	0	0	4,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	941,11	168	121,29	124,21	413,56	527,55	20
Soft wheat, spring - Grain [non-irrigated]	2	10	0	0	6,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	1359,78	168	121,29	128,6	417,95	941,84	20
Soft wheat, spring - Grain [non-irrigated]	4	10	0	0	8,5	1,5	0,91	1	0,24	2	0,7	0,75	0,33	170	50	0	0	1778,5	168	121,29	132,98	423,33	1356,81	20
Soft wheat, winter - Grain [non-irrigated]	1	39	0	0	6	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1361,2	208,97	134,44	172,44	515,86	845,39	20
Soft wheat, winter - Grain [non-irrigated]	2	39	0	0	8	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1814,99	208,97	134,44	178,28	521,7	1293,3	20
Soft wheat, winter - Grain [non-irrigated]	4	39	0	0	10	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	2268,7	208,97	134,44	182,67	526,09	1742,7	20
Soft wheat, winter - Seed [non-irrigated]	1	39	0	0	6	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1150,8	208,97	134,44	172,44	515,86	634,96	20
Soft wheat, winter - Seed [non-irrigated]	2	39	0	0	8	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1534,4	208,97	134,44	178,28	521,7	1012,71	20
Soft wheat, winter - Seed [non-irrigated]	4	39	0	0	10	2	3,8	1	0,12	4	1,7	2	1,07	200	70	0	0	1918	208,97	134,44	182,67	526,09	1391,9	20
SOUTHERN AND EASTERN [IE]																								
Barley, spring - Grain [non-irrigated]	1	12	0	0	7,1	1	1	1	1	2	1	0	0	110	55	0	0	560	130	126	396	652	58	20
Barley, spring - Grain [non-irrigated]	2	12	0	0	5,6	1	1	1	1	2	1	0	0	110	55	0	0	560	130	126	396	652	-92	20
Barley, winter - Grain [non-irrigated]	1	38	0	0	8,2	2	2,5	1	1	2	1	1	1	180	70	0	0	820	206	192	426	824	-4	20
Barley, winter - Grain [non-irrigated]	2	38	0	0	6,6	2	2,5	1	1	2	1	1	1	180	70	0	0	660	206	192	426	824	-164	20
Barley, winter - Grain [non-irrigated]	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0
Beet, sugar- Sugar [non-irrigated]	1	10	0	0	55	1	0,03	1	1	2	1	0	0	100	50	0	0	2750	305	235	847	1387	1363	20
Beet, sugar- Sugar [non-irrigated]	2	10	0	0	45	1	0,03	1	1	2	1	0	0	100	50	0	0	2250	305	235	847	1387	863	20
Durum wheat, spring - Grain [non-irrigated]	1	12	0	0	8,6	2	2	1	1	3	2	1	1	110	50	0	0	946	167	214	380	761	185	20
Durum wheat, spring - Grain [non-irrigated]	2	12	0	0	6,8	2	2	1	1	3	2	1	1	110	50	0	0	748	167	214	380	761	-13	20

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumb	PestGrowthRegulationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
Durum wheat, spring - Grain [non-irrigated]	4	0	0	0	0	0	0	0	0	0	0	0	0	-1	0	0	0	0	0	0	0	0	0	0
Durum wheat, winter - Grain [non-irrigated]	1	42	0	0	9,1	2	2	1	1	3	2	1	1	200	70	0	0	955,5	223	321	386	930	25,5	20
Durum wheat, winter - Grain [non-irrigated]	2	42	0	0	6,7	2	2	1	1	3	2	1	1	200	70	0	0	703,5	223	321	386	930	-226,5	20
Grass, permanent pasture - Hay [non-irrigated]	3	1	0	0	7,2	1	1	0	0	0	0	0	0	125	40	0	0	216	120	25	20	165	51	4
Grass, temporary (less than four years) - Hay [non-irrigated]	2	15	0	0	9	1	1	0	0	0	0	0	0	125	40	0	0	270	120	25	20	165	105	4
Grass, temporary (less than four years) - Hay [non-irrigated]	3	15	0	0	7,2	1	1	0	0	0	0	0	0	125	40	0	0	216	120	25	20	165	51	4
Oat - Grain [non-irrigated]	1	42	0	0	8,3	1	0,03	1	1	2	1	1	1	100	50	0	0	830	179	127	425	731	99	20
Oat - Grain [non-irrigated]	2	42	0	0	6,6	1	0,03	1	1	2	1	1	1	100	50	0	0	660	179	127	425	731	-71	20
Potato - Root [non-irrigated]	1	10	0	0	41	1	4	4	18	6	6	0	0	220	150	0	0	6970	250	570	2824	3644	3326	90
Potato - Root [non-irrigated]	2	10	0	0	32	1	4	4	18	6	6	0	0	220	150	0	0	5440	250	570	2824	3644	1796	90
THESSALIA [GR]																								
Alfalfa - Fodder [irrigated]	2	14	0	0	5	0	0	0	0	0	0	0	0	0	0	7	5000	0	0	0	0	0	0	0
Alfalfa - Fodder [irrigated]	1	14	0	0	5	0	0	0	0	0	0	0	0	0	0	7	5000	0	0	0	0	0	0	0
Barley, winter - Grain [non-irrigated]	2	44	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Barley, winter - Grain [non-irrigated]	1	44	0	0	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Beet, sugar - Sugar [irrigated]	2	11	0	0	90	1	0	1	0	0	0	0	0	0	0	8	6000	0	0	0	0	0	0	0
Beet, sugar - Sugar [irrigated]	1	11	0	0	90	1	0	1	0	0	0	0	0	0	0	8	6000	0	0	0	0	0	0	0
Cotton (all varieties) - Fibre [irrigated]	2	19	0	0	3,5	1	0	0	0	0	0	1	0	0	0	6	5000	0	0	0	0	0	0	0
Cotton (all varieties) - Fibre [irrigated]	1	19	0	0	3,5	1	0	0	0	0	0	1	0	0	0	6	5000	0	0	0	0	0	0	0
Durum wheat, winter - Grain [non-irrigated]	2	40	0	0	5	0	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0
Durum wheat, winter - Grain [non-irrigated]	1	40	0	0	5	0	0	0	0	0	0	0	0	150	0	0	0	0	0	0	0	0	0	0
Maize, Fodder - Fodder [irrigated]	2	5	0	0	80	1	0	2	0	0	0	0	0	0	0	8	6000	0	0	0	0	0	0	0
Maize, Fodder - Fodder [irrigated]	1	5	0	0	80	1	0	2	0	0	0	0	0	0	0	8	6000	0	0	0	0	0	0	0
ZACHODNIOPOMORSKIE [PL]																								
Barley, spring - Grain [non-irrigated]	3	17	0	0	4,4	1	1,3	0,2	0,03	0,3	0,12	0,3	0,22	106	42	0	0	443	90,3	38,8	119,8	248,8	194,3	10
Barley, spring - Grain [non-irrigated]	2	17	0	0	3,8	1	0,5	0,1	0,01	0,2	0,24	0,3	0,26	105	44	0	0	380	93,3	25,5	104,3	223	157	9
Beet, sugar- Sugar [non-irrigated]	3	17	0	0	49	2,1	1,44	0,5	0,07	0,7	0,32	0	0	161	83	0	0	2266,3	162,8	144,8	338,3	645,8	1620,5	32
Beet, sugar- Sugar [non-irrigated]	2	17	0	0	41	1,6	1,44	0,5	0,07	0,5	0,32	0	0	145	74	0	0	1896,3	145,8	105	329,8	580,5	1315,8	29
Cereal, other - Grain [non-irrigated]	2	14	0	0	3,7	1	0,08	0,6	0,02	0	0	0	0	108	34	0	0	351,5	82,75	20	112,25	215	136,5	10
Cereal, other - Grain [non-irrigated]	1	14	0	0	3,2	0,8	0,28	0,3	0,01	0	0	0	0	93	24	0	0	304	64,5	16,25	98,5	179,25	124,75	9
Grass, permanent pasture - Fresh	3	0	1	1	40	0	0	0	0	0	0	0	0	140	64	0	0	0	131,8	0	34,5	166,3	-163,3	17,67

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[non-irrigated]																								
Grass, permanent pasture - Fresh [non-irrigated]	2	0	1	1	30	0	0	0	0	0	0	0	0	80	35	0	0	0	74	0	28,5	102,5	-102,5	14,91
Grass, permanent pasture - Fresh [non-irrigated]	1	0	1	1	25	0	0	0	0	0	0	0	0	70	30	0	0	0	62	0	27	89	-89	14,22
Grass, permanent pasture - Hay [non-irrigated]	3	0	1	1	8	0	0	0	0	0	0	0	0	140	64	0	0	0	131,8	0	8,5	212,3	-212,3	17,44
Grass, permanent pasture - Hay [non-irrigated]	2	0	1	1	6	0	0	0	0	0	0	0	0	80	35	0	0	0	74	0	66,5	140,5	-140,5	14,72
Grass, permanent pasture - Hay [non-irrigated]	1	0	1	1	5	0	0	0	0	0	0	0	0	70	30	0	0	0	62	0	63	125	-125	14,4
Grass, permanent pasture - Silage [non-irrigated]	3	0	1	1	28	0	0	0	0	0	0	0	0	140	64	0	0	0	131,8	0	115	246,8	-246,8	9,74
Grass, permanent pasture - Silage [non-irrigated]	2	0	1	1	21	0	0	0	0	0	0	0	0	80	35	0	0	0	74	0	95	169	-169	8,35
Grass, permanent pasture - Silage [non-irrigated]	1	0	1	1	17,5	0	0	0	0	0	0	0	0	70	30	0	0	0	62	0	90	152	-152	8,01
Grass, temporary (less than four years) - Silage [non-irrigated]	3	18	1	1	28	0	0	0	0	0	0	0	0	140	64	0	0	0	131,8	0	155	286,8	-286,8	11,23
Grass, temporary (less than four years) - Silage [non-irrigated]	2	18	1	1	21	0	0	0	0	0	0	0	0	80	35	0	0	0	74	0	130	204	-204	8,55
Grass, temporary (less than four years) - Silage [non-irrigated]	1	18	1	1	17,5	0	0	0	0	0	0	0	0	70	30	0	0	0	62	0	120	182	-182	9,01
Maize, Fodder - Fodder [non-irrigated]	2	19	0	0	55	1,4	0,37	0,2	0,01	0	0	0	0	184	78	0	0	0	171,75	42,5	204,75	419	-419	16
Maize, Fodder - Fodder [non-irrigated]	1	19	0	0	45	1,2	0,96	0,2	0,1	0	0	0	0	158	51	0	0	0	124,25	27,5	195,25	347	-347	115
Oat - Grain [non-irrigated]	1	13	0	0	3	0,8	0,66	0,1	0,01	0	0	0	0	84	21	0	0	210	61,75	11,96	88	161,71	48,3	8
Pea - Grain [non-irrigated]	2	13	0	0	2,5	1,2	1,1	2,3	0,05	1,5	1	0	0	10	50	0	0	406,25	86,25	85	151,75	323	83,25	11
Potato - Root [non-irrigated]	2	18	0	0	24,4	0,6	0,4	1,2	0,05	2,6	3,25	0	0	145	80	0	0	3172	111,23	0,25	291,23	402,7	928,78	28
Potato - Root [non-irrigated]	1	18	0	0	17	0,1	0,08	1,63	0,05	1	2,6	0	0	68	12	0	0	850	72,5	0,25	126,75	199,5	723,25	23
Rape - Grain [non-irrigated]	3	35	0	0	3,82	1,8	1,26	1,9	0,25	1,4	0,35	0,2	0,2	180	42	0	0	859,5	145,5	120	117,3	382,8	476,8	13
Rape - Grain [non-irrigated]	2	35	0	0	2,8	1,9	1,2	1,7	0,24	0,7	0,25	0	0	150	53	0	0	630	130,5	100	105,5	336	294	11
Rye - Grain [non-irrigated]	1	39	0	0	3,2	0,7	0,28	0	0	0	0	0,2	0,26	82	26	0	0	240	68,3	19,5	87,3	175	65	9
Soft wheat, spring - Grain [non-irrigated]	3	15	0	0	5,2	1,3	1,65	0,5	0,05	0,6	0,36	0,3	0,28	127	38	0	0	598	92,8	37,5	141	271,3	326,8	10
Soft wheat, spring - Grain [non-irrigated]	2	15	0	0	4,4	1	0,33	0,4	0,01	0,3	0,32	0,3	0,2	125	53	0	0	506	110,8	23,8	124,3	258,8	247,3	9
Soft wheat, winter - Grain [non-	3	41	0	0	6,4	1,7	1,1	0,2	0,02	1,7	0,9	0,9	0,61	181	41	0	0	688	127,3	60	146	333,3	354,8	12

simplecropandusage_caption	Siteclass	SowingDate	PerennialsBeginningOfPeriod	PerennialsEndOfPeriod	Yield	PestHerbizideApplicationNumber	PestHerbizideApplicationIngredient	PestInsectizideApplicationNumber	PestInsectizideApplicationIngredient	PestFungizideApplicationNumber	PestFungizideApplicationIngredient	PestGrowthRegulationNumb	PestGrowthRegulationIngred	FertilizerNitrogen	FertilizerPhosphorus	IrrigationMeanApplicationNumber	IrrigationMeanApplicationWater	TotalRevenue	CostsOfFertilizer	CostsOfCropProtection	OtherVariableCosts	SumOfVariableCosts	GrossMargin	LaborDemand
irrigated]																								
Soft wheat, winter - Grain [non-irrigated]	2	39	0	0	5,2	1,9	0,77	0,3	0,01	1,3	0,48	0,5	0,72	170	45	0	0	559	126	56,1	128,8	309,1	248,1	11
Soft wheat, winter - Grain [non-irrigated]	1	39	0	0	3,2	1,7	0,55	0,3	0,01	1	0,48	0,2	0,98	80	34	0	0	344	73,8	45	108	227,8	116,3	10
Triticale - Grain [non-irrigated]	2	39	0	0	3,7	1	0,11	0	0	0,2	0,08	0,5	0,26	91	33	0	0	351,5	85,25	27,5	110,75	223,5	128	10
Triticale - Grain [non-irrigated]	1	39	0	0	3	1	0,11	0	0	0	0	0,2	0,5	98	23	0	0	285	72	23,75	98	193,75	91,25	9
UUSIMAA [FI]																								
Barley, spring - Fodder [non-irrigated]	1	19	0	0	3,5	1	0	0,3	0	0,3	0	0	0	50	7	0	0	416,5	62	36	115	213	247	8
Barley, spring - Fodder [non-irrigated]	2	19	0	0	4	1	0	0,3	0	0,3	0	0	0	60	8	0	0	476	73	36	130	239	237	8
Barley, spring - Fodder [non-irrigated]	3	19	0	0	4,5	1	0	0,3	0	0,3	0	0	0	70	9	0	0	535,5	91	36	148	275	260,5	8,5
Grass, temporary (less than four years) - Fresh [non-irrigated]	2	35	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oat - Fodder [non-irrigated]	1	19	0	0	3,2	1	0	0,4	0	0	0	0	0	46	7	0	0	328,48	46	19	67,8	132	196,5	9
Oat - Fodder [non-irrigated]	2	19	0	0	4	1	0	0,4	0	0	0	0	0	68	8	0	0	409,4	68	19	75	162	247	9
Oat - Fodder [non-irrigated]	3	19	0	0	4,4	1	0	0,4	0	0	0	0	0	77	8,5	0	0	451,66	77	19	78,6	174,6	277,06	9
Rape - Grain [non-irrigated]	2	19	1	1	1,3	0,2	0	0,5	0	0,5	0	0	0	100	15	0	0	294	96	40	68	204	22,2	9,5
Rye - Grain [non-irrigated]	2	19	0	0	2,8	0	0	0	0	0,3	0	1	0	80	12	0	0	383,6	106	40	94	252	131,6	6,8
Soft wheat, spring - Grain [non-irrigated]	1	19	0	0	3,5	1	0	0,3	0	0,4	0	0	0	48	75	0	0	451,5	80	53	95	228	226,5	8
Soft wheat, spring - Grain [non-irrigated]	2	19	0	0	4,2	1	0	0,3	0	0,4	0	0	0	60	8	0	0	541,8	101	53	102	256	285,8	8
Soft wheat, spring - Grain [non-irrigated]	3	19	0	0	5	1	0	0,3	0	0,4	0	0	0	73	85	0	0	645	123	53	110	286	359	8
Soft wheat, winter - Grain [non-irrigated]	1	35	0	0	3,5	1	0	0,5	0	0,6	0	0	0	80	20	0	0	451,5	105	58	84,5	247	204,5	8
Soft wheat, winter - Grain [non-irrigated]	2	35	0	0	4	1	0	0,5	0	0,6	0	0	0	90	22	0	0	516	119	58	89	266	250	8
Soft wheat, winter - Grain [non-irrigated]	3	35	0	0	4,5	1	0	0,5	0	0,6	0	0	0	100	24	0	0	580,5	132	58	93,5	283,5	297	8