



中荷奶业发展中心
SINO-DUTCH DAIRY DEVELOPMENT CENTRE

Land use and optimal crop production.

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Objectives

- Put forward to the suggestions of the optimal land use for crop and feed production in China.
 - Study the behaviours of the stakeholders, such as farmers, cooperatives and enterprises on feed planting decisions, including the demands/wishes of the dairy farmers.
 - Create a picture of the feed chain (from production – dairy farm), including stakeholder mapping for China and the Netherlands
 - Learn from the experiences of feed production and how it is organised in the Netherlands.
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- ✓ 提出合理的粮食作物及饲料种植规模。
 - ✓ 研究农户、合作社、农业企业的饲料种植决策行为，包括对奶牛养殖企业的需求研究。
 - ✓ 画出中国及荷兰的饲料生产、使用流程。
 - ✓ 学习借鉴荷兰的奶牛饲料生产及组织方式。

Methodology/approach

Survey to collect data. designed in the first months of 2016

- Dairy farmers: gross margin and decision making in what feed to buy.
- Crop growers: gross margin and decision making in cropping and selling.

One fieldtrip in China to study the feed chain (April 2016)

One fieldtrip in Netherlands to study the feed chain (August 2016)

Total number of surveys: 29 dairy farmers and 97 crop growers and feed companies

- ✓ 由于现有数据少，本研究通过调查获得一手数据。
 - 奶牛养殖企业：毛利润及饲料购买决策。
 - 种植户：毛利润及作物种植、出售决策。
- ✓ 2016年四月对中国饲料生产流通进行了实地调研。
- ✓ 2016年八月对荷兰饲料生产流通进行了实地调研。
- ✓ 中国的调查样本包括29个奶牛养殖场以及97个种植户。

Result dairy farmers

General

- Feed costs large share of total costs, most feed is bought and not grown by the farmer
- Average: feed costs is 80% of milk returns.
- Feed: 56% is maize silage, 16% concentrates, Chinese grass 6%, Corn 6%, 4% Alfalfa

Feed quality

- Feed is never assessed as poor or very poor quality in the survey by the dairy farmers
- Chinese hay has a relative low quality (60% medium score), Maize silage is second (42% medium score).
- Quality assessment is mostly done, somewhat less for Chinese hay and Maize silage.

Feed price and buying

- Transport has big influence on price of feed.
- Maize silage, straw and corn are mainly (about 2/3d) bought from crop growers.
- According to survey quality is most important criterion to buy, price is less important
- Stock of maize silage usually up to two months.

- ✓ 总体而言，平均饲料成本占总成本的近80%，大部分饲料都是购买的；青贮饲料占56%，精饲料16%，羊草6%，谷类6%，苜蓿4%。
- ✓ 养殖企业对饲料的评价总体较好，羊草质量相对较低，青贮玉米次之，个别用户没有对羊草和青贮玉米进行评价。
- ✓ 运输费用对饲料价格的影响较大，青贮玉米、秸秆及玉米主要从附近种植户处购买，养殖户购买饲料最关心的是饲料质量，价格居第二位。养殖户青贮玉米的存储量一般在2个月左右。

Result crop growers I

Crops and margins

- Planting area per crop farmer varies from 30-600 mu.
- Heilongjiang and Inner Mongolia are the main feed production areas in China. Compared with the country's average household farm size of 8 mu, Heilongjiang and Inner Mongolia have an average farm size of over 300 mu.
- Maize silage has the highest gross margin, prices and margins are lower in 2016.
- Feed companies are more professional than individual crop growers. Yield 3 times higher.

Availability and rent of land

- In north of China rent ranges between CNY 300 to CNY 400 per mu.
 - In south of China, rent reaches to CNY 700 to CNY 1000 per mu.
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- ✓ 每个农户的耕地面积30-600亩，黑龙江及内蒙古是主要的饲草产地（甘肃等没有调查），这些地区的户均规模超过300亩，青贮玉米的种植效益最高，种植企业比个体种植户具有更高的专业化水平，种植企业平均产出是个体种植户的3倍。
 - ✓ 种植者土地主要依靠流转得来，华北地区土地租金每亩300-400元，华南地区为700-1000元。

Result crop growers II

End user and buyer

- Maize silage and rye grass are mainly planted for feeding cow or sheep of their own.
- Corn is sold for the feed companies/ state owned grain companies
- Some feed companies specialize in planting alfalfa for sale. Some big dairy farms plant alfalfa for use of themselves.

Incentives for better quality

- Subsidies, insurance against crop failure are among the first priorities.
 - No one is interested in training.
 - Main difficulties include high investment, quality assurance, low comparative efficiency, no subsidy, lack of technology.
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- ✓ 养殖户主要种植青贮玉米及黑麦草养奶牛、羊，玉米主要卖给饲料企业或国有粮食企业，一些养殖企业也种植苜蓿，一些大奶牛养殖企业种植苜蓿用来养牛。
 - ✓ 对提高牧草质量的动机调查表明，种植补贴、农业保险是优先考虑因素，没有人对技术培训感兴趣，主要的困难包括没有补贴、缺乏技术等。

Key points field visits in China April 2016

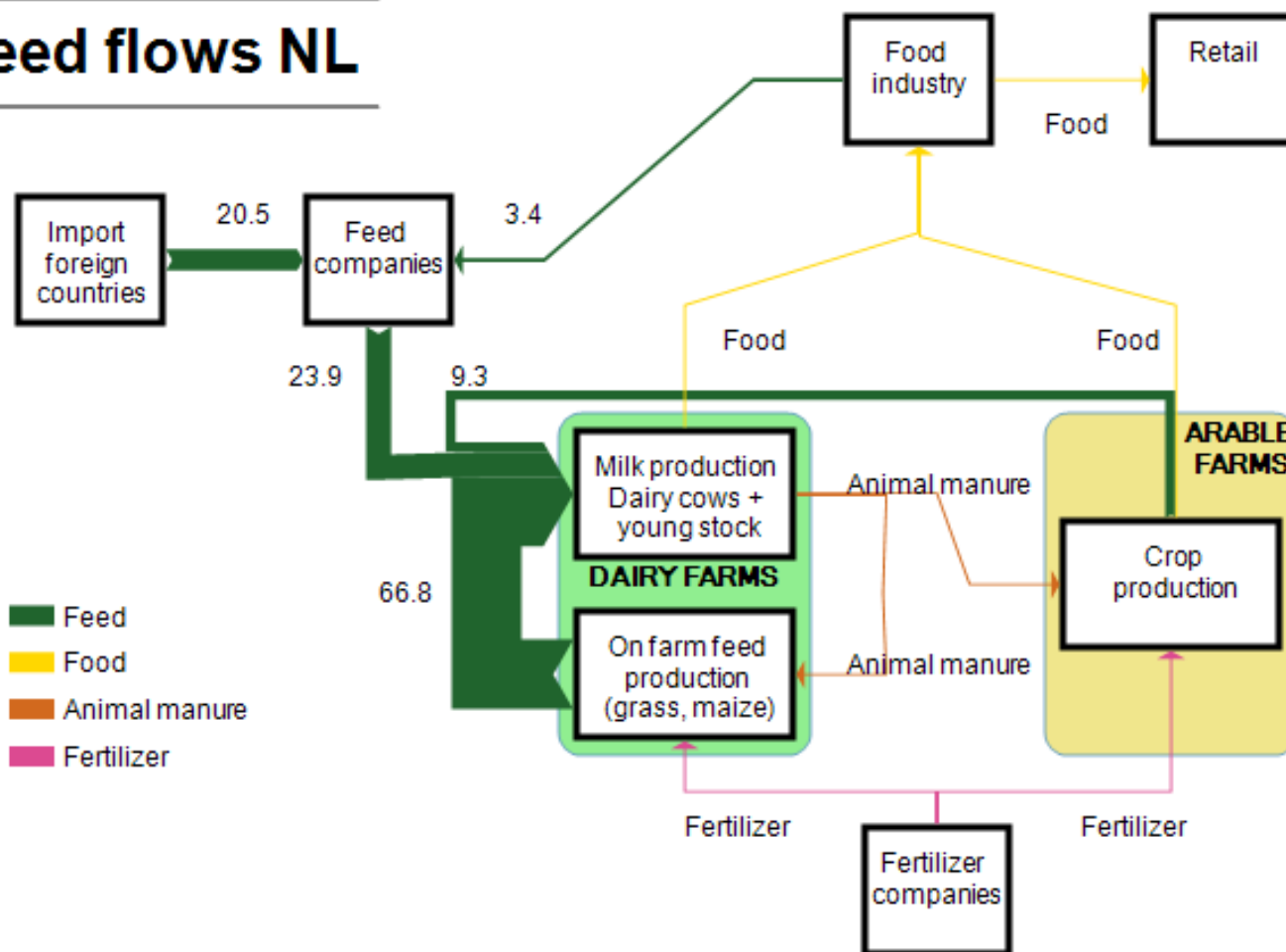
- Visits of several dairy farms and crop growers, including a feed company in Beijing and Tianjin region and in Inner Mongolia.
 - In general the farms have to buy most of the feed and are dependent of quality offered, so first focus seems to be on quantity and not on quality.
 - Feed production now also in Beijing area, effect of policy that farmers grow maize for silage and alfalfa instead of cash crops.
 - Visit in Inner Mongolia was to Opportunis company: large scale crop grower, with production in China, US and Argentina. Strategy is to control and secure the feed supply for its own dairy farms.
 - In general feed quality can be improved in China. There are two main strategies to achieve this:
 1. Make it possible that farmers grow their own feed so they can influence the quality e.g. by optimal harvesting time themselves.
 2. Stimulate the production of high quality feed:
 - Setting minimum standards e.g. for dry matter content of corn silage or energy content.
 - Relate price to quality, based on assessment by independent laboratories.
- 对部分北京、天津、内蒙的奶牛养殖企业及种植企业的调查表明，一般奶牛养殖场必须购买大部分的饲料，因而依赖于所提供的饲料质量的，所以首先应该是饲料质量，而不是数量。受政策影响，北京地区农民种植玉米用于青贮，而不是其他饲料作物。内蒙古访问的正时公司是大规模作物种植者的代表，就像美国 and 阿根廷一样。目的是保证自有奶牛养殖场的饲料供应安全。
- 一般来说，中国的饲料质量可以改进。有两个主要的策略：1、让养殖户自己种植饲料，以保证质量，例如，通过最佳的收获时间，提高产品质量。2、鼓励优质饲料的生产：设定最低标准，比如制定青贮玉米的干物质最低含量或能量含量，根据独立实验室评估，使产品质量同价格挂钩。

Key points field visits Netherlands August 2016

- In the Netherlands, dairy farms are mainly family farms. In general they are smaller; In recent years, the main dairy farms are enterprises in China, they have large scale.
 - In the Netherlands, roughage for dairy farms mainly self provided. In China, roughage for dairy farm mainly from the external input, 2/3 of the alfalfa supply is imported.
 - The mechanization level of dairy farms in the Netherlands is high.
 - In the Netherlands, manure is a negative asset. In China, manure is a positive asset.
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- ✓ 荷兰的奶牛养殖主体为家庭农场，规模普遍较小；中国近年的奶牛养殖主体为养殖企业，规模大。
 - ✓ 荷兰的奶牛饲草主要靠自给；中国主要靠从外部输入，三分之二的苜蓿供给依靠进口。
 - ✓ 荷兰的奶牛养殖机械化程度高。
 - ✓ 在荷兰，奶牛粪便需要交较高的处理费；在中国，奶牛粪便能够为奶牛养殖企业带来收益。

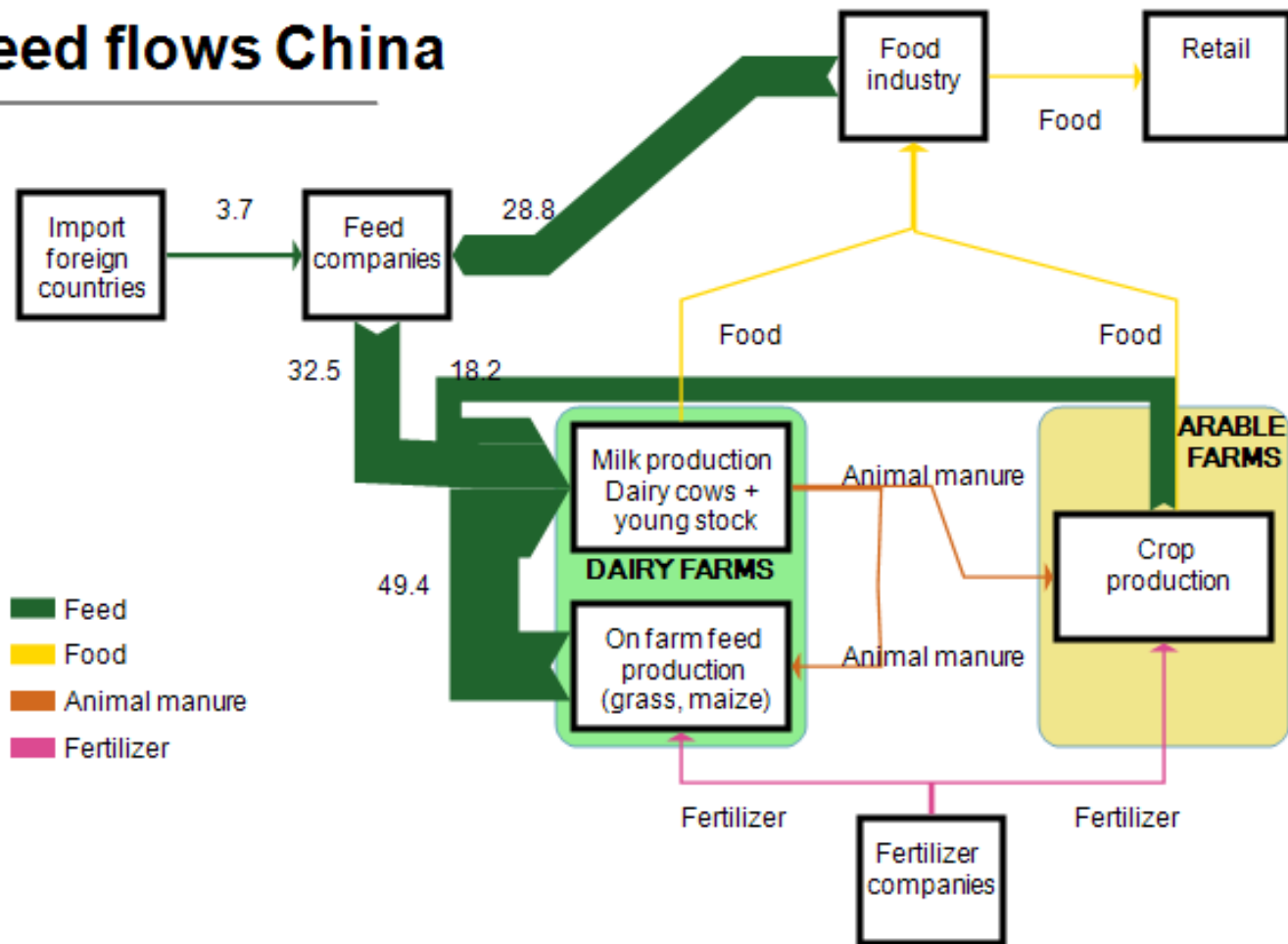
Feed flows for average Dutch dairy farm: dry matter

Feed flows NL



Feed flows for average China dairy farm: dry matter

Feed flows China



Feed flows for average China dairy farm: first draft, better data needed

General conclusions and recommendations

For the dairy farmer feed is crucial because it is a large part of total costs and the availability and quality will determine the performance of the cows and therefore the productivity of the farm as a whole.

In general feed quality can be improved in China. There are two main strategies to achieve this

1. Make it possible that farmers grow their own feed so they can influence the quality e.g. by optimal harvesting time themselves.
 2. Stimulate the production of high quality feed:
 - Setting minimum standards e.g. for dry matter content of corn silage or energy content
 - Relate price to quality, based on assessment by independent laboratories
- ✓ 对于奶牛的饲料是至关重要的，因为它是总成本的一大组成部分，可用性和质量将决定对奶牛的性能，因此对整个农场的生产力。
- ✓ 一般饲料质量可以改进在中国。有两个主要的策略来实现这一使农民有可能种植自己的饲料，这样他们就可以影响质量，例如，通过最佳的收获时间。鼓励优质饲料的生产：设定最低标准例如：玉米青贮或能量含量的干物质含量与质量有关的价格，根据独立实验室评估。