Confidential | Niet bestemd voor publikatie

Stichting

N E D E R L A N D S G R A A N - C E N T R U M

WAGENINGEN (The Netherlands)

Technisch Bericht Nr 2 | Jan. 1959

PRELIMINARY REPORT ON THE "YELLOW RUST TRIALS PROJECT" IN 1958

by

J.C.ZADOKS

Institute for Phytopathological Research and
Laboratory of Phytopathology of the Agric. University at Wageningen

---

ENIGE RESULTATEN VAN HET GELE-ROESTVANGSORTIMENTEN-PROJEKT VERKREGEN IN 1958

door

J.C.ZADOKS

Instituut voor Planteziektenkundig Onderzoek en
Laboratorium voor Fytopathologie der L.H. te Wageningen

CONTENTS

	page/blz.	INHOUD
English text	3-12	Engelse tekst
Dutch text	13-16	Nederlandse tekst
Results obtained in 1958	Table	Waarnemingsresultaten in 1958
Maps	I-III	Kaarten
Appendix: List of stations		Bijlage: Lijst van waarnemingsstations

F O R E W O R D

Last year we published a report in which Mr. ZADOKS summarized the results of the yellow rust trials in Europe obtained in 1956 and 1957. We offer now another report to the co-operators in these yellow rust investigations in which the 1958 results are summarized.

The aim of this report is mainly to give the co-operators a survey of this year's results. It is, of course, too early to give a complete working-out of all data concerning the behaviour of yellow rust races. It is therefore necessary to continue the yellow rust trials for some time to come.

Meanwhile, we are greatly indebted to all co-operators in this yellow rust investigation for their valuable observations and their help by forwarding samples and results. This co-operation has given a special value to Mr. ZADOK's investigations.

BROEKHUIZEN

Secretary of the N.G.C.

T E N G E L E I D E

In aansluiting op de reeds gepubliceerde resultaten, in 1956 en 1957 verkregen bij de waarnemingen aan de gele-roestvangsortimenten, zijn in het hierbij aangeboden rapport de resultaten van de in 1958 verrichte waarnemingen samengevat.

De bedoeling van dit verslag is voornamelijk om hiermee de vele medewerkers aan dit onderzoek wederom een overzicht van de verkregen resultaten te geven. Een volledige bewerking van het omvangrijke materiaal kan uiteraard eerst tegemoet worden gezien, als het onderzoek over een nog iets langere periode is voortgezet.

Een woord van hartelijke dank aan alle medewerkers en waarnemers, door wier toewijding dit omvangrijke onderzoekprojekt mogelijk is geworden, is hier zeker op zijn plaats.

BROEKHUIZEN

Sekretaris van het N.G.C.

THE "YELLOW RUST TRIALS PROJECT" 1958

by J.C.ZADOKS, Wageningen

1. Introduction

The aim of the "Yellow Rust Trials Project" is to get information on:

1. the first appearance of yellow rust in various regions,
2. the maximal degree of infection by yellow rust in various regions,
3. the distribution of yellow rust races,
4. the varietal reaction of wheat to yellow rust and its races under different climatic conditions.

The "Yellow Rust Trials Project" is organized by the "Netherlands Grain Centre" (Wageningen, Holland). The "Biologische Bundesanstalt" (B.B.A., Brunswick, Germany) has contributed by determining the yellow rust races in the glasshouse. We are very grateful to the local observers, whose careful observations have given this project shape and content.

2. Abstract of the records

The figures appearing in the attached table express the highest degree of attack recorded for each variety and each trial. No distinction has been made between the reaction types I, II, III and IV. When the reaction type recorded was 0, the degree of attack was entered into the table as 0.

- = variety not sown, killed by frost, etc.

+ = yellow rust infection recorded but degree of attack unknown.

For a right evaluation of the data of the yellow rust trials it was necessary to make corrections for leaf rust. However, corrections for leaf rust have been entered only when "leaf rust" was diagnosed irrefutably by examination of the samples and the recording forms. Some of the puzzling records, possibly due to leaf rust, could not be eliminated for lack of evidence.

3. Race identification by means of yellow rust trials

Last year's attempt to identify races by means of yellow rust trials has been continued. For this purpose the yellow rust races are tentatively classed into two groupes. One group refers to the race of Cappelle (B.B.A. temporary code number 2X), which is regarded as the type race of the group. A second group refers to the race of Heine VII (B.B.A. temporary code number 7X). Race 7X is regarded as the type race of the second group.

The criteria used for the classification of yellow rust in one of these groups have been discussed in last year's report. One standard has been added:

2X group 2) Cappelle $\geqslant$ 4 and Staring $\geqslant$ 4 and Cappelle = Staring ± 1.

According to the standards, race groups in 1958 may be tentatively classified as follows (map III/A and III/B);

Belgium	2X	411, 415
	7X	411, 415, 431A, 432
Denmark	2X	-
	7X	112
France	2X	722
	7X	702, 712, 714, 715, 722
Germany	2X	-
	7X	211A, 222, 224, 2251A, 228, 241, 251, 271, 285
Great Britain and Northern Ireland		
	2X	-
	7X	511, 512, 531, 545, 551, 552, 553, 582, 583
Netherlands	2X	347
	7X	331, 332, 333, 334A, 335, 336, 345, 346A, 347 351, 352, 354, 355, 356, 361
Portugal	2X	975
	7X	-
Switzerland	2X	841, 854 ?
	7X	-

A = artificial infection in the vicinity of the trial.

4. Race identification in the glasshouse

Race identification in the glasshouse is carried out by the B.B.A., as a routine technique. Owing to the great number of samples there was a stagnation in the work. Arrears could only be catched up by building another greenhouse. As this greenhouse is in operation now, we hope to give a more detailed information on yellow rust races in our next report.

The following data have been provided with all reserve by Miss Dr. E.FUCHS (B.B.A. Brunswick, Germany). (map II):

Race 1	Rare, on trial grounds
Race 2X	Common, though not so frequent as race 7X. Found in England, Holland, Belgium, France, Germany and Switzerland.
Race 5/6	Rare, resembles race 7X. Holland
Race 7X	(= 8B in England) Most frequent race in Europe. Found in England, Norway, Sweden, Denmark, Germany, Holland, Belgium and France.

Race 17/26	Some samples from Holland
Race 27/53	Found again in 1956, characterized by its virulence to Chinese 166. Sweden, Holland, Germany.
Race 54	Known for about 15 years. Holland, Germany.
Race 55	Resembles race 2X, appears often in combination with 2X. Holland, Germany.

NB. These data refer to the years before 1958.

5. The wheat varieties

In contrast with the preceding report a corrected table has been given in the 1958 report. Only records from plants in the stage of development $\geqslant$ 10 were considered; infection type 0 was interpreted as "no infection observed".

The following interpretation is essentially a report on the reaction of adult plants against rust infection. In general wheat varieties are more susceptible to yellow rust in their seedling stage than in the adult stage.

For each variety the country of origin is marked O, the countries where the variety is grown are marked C.

S = spring wheat
W = winter wheat

1. W Chinese-W

O. China
C. -
This variety is the yellow rust differential Chinese 166, in use at Brunswick and Wageningen. It is called Chinese-W because, according to some insiders, it has not quite the same aspect as at the time of the first yellow rust differentiations. Many types are present in this variety which differ markedly in morphology and resistance. It is not known which type approaches the original Chinese 166. Data obtained with this variety are of little value owing to its impurity. At 361 a degree of attack 9 with yellow rust on glumes has been recorded.

2. W Reichersberg 42

O. Austria
C. -
This variety was very resistant to 2X and 7X race groups in 1956 and 1957. This also holds for 1958. The records from 211 : IV/8 and from 511: IV/5 on top leaves only are exceptional. See also under Carsten V.

3. W Hybrid 46

O. England
C. England
Records of 1956, 1957 and 1958 show Hybrid 46 to be very resistant, at least to the 7X race group. Marks as high as 6 occur at 041, 2251 and 3671. The last two marks are due to artificial infection and may indicate some susceptibility to the Peko race.

4. W Harvest Queen

O. U.S.A.
C. -
A useful field differential

5. W Cappelle

O. France
C. France, England, Scotland, Ireland, Belgium, Holland, Switzerland, Denmark
Cappelle is a good field differential. Trial plots of Cappelle, adjoining plots of Heine VII with a degree of attack 8, are often free from yellow rust. Under some conditions, however, the marks of Cappelle may go up to 4, presumedly in response to a 7X infection, see 354. Higher marks of Cappelle are due to infection by race group 2X. This conclusion is enforced by high marks of Staring and low marks of Heine VII. See records 347, 411, 415, 722, 841 and 975.

6. W Franc-Nord

O. France
C. -
The variety "Nord" used in the yellow rust trials was supposed to be Nord from breeder DESPREZ, but it proved to be Franc-Nord from breeder BLONDEAU. We apologize for this error.
Franc-Nord is susceptible to the Heine VII race group. Its response to the Cappelle race group is variable. As a field differential Franc-Nord is of little interest.

7. W Heine strain 110

O. Germany
C. -
As in 1956 and 1957 the Heine strain 110 was veru resistant this year, at least to the Heine VII race group. The highest mark was at 352: III/2.

8. W Staring

O. Netherlands
C. Netherlands
Staring is a useful field differential, having about the same reactions as Cappelle to the 7X and 2X race groups. Highest marks in the Heine VII race group area were 322: ?/4 and 229: III/3

Staring is known to be resistant to race 7, which formerly frequented Carsten V but seems to have disappeared since.

9. W Rubis

O. France
C. -
An excellent rust indicator.

10. W Panter

O. Belgium
C. Belgium, Netherlands
As in 1956 and 1957 Panter is very resistant at least to the 7X race group. The marks are nevertheless higher than those of 1957.
An exceptional mark occurs at 211: III/8.

11. W Heine VII

O. Germany
C. Germany, Netherlands, Belgium, England, Danmark
A Heine VII attack is indicative of the Heine VII race group. In countries where race 7X is not yet found, e.g. Switzerland, Heine VII was not attacked. The Heine VII race group has spread markedly in France.
A clearly distinct impurity with longer culms and shorter heads was present in many trials.

12. W Blé des Dômes

O. France
C. France
Blé des Dômes may be a useful accessory field differential to Heine VII. In 841 it was not affected by the Cappelle race group, but in 975 it was. This difference is not explained yet.

13. W Carsten V

O. Germany
C. Germany
Carsten V is known to be slightly susceptible to the Heine VII race group. This explains marks such as recorded at 222: III/3. In the southern group of East German trials, some trials have been artificially infected with a series of rust races, among which one or more affect Carsten V, vide 2821, 283 and 284.

A serious attack has been recorded at Brunswick (2251) after artificial infection of the field with race 54. An artificial infection plot at Baarn (3671) shows the same relatively high infection of Carsten V, due to the Peko race. This and other evidence suggest the identity of the so-called Peko race and race 54.

An interesting mark from Scotland at 511: IV/7 on top leaves only, is hard to explain. This evidence may point to a late attack by some other race. The appearance of another race nicely smoothes away the problem presented

by the high mark for Reichersberg 42 at 511. Relatively high marks for Carsten V and Reichersberg 42 occur also at 211. Though the interpretation of the observations is highly speculative, Carsten V is still an interesting field differential.

14. W Persian

O. Persia
C. -
A very useful rust indicator. As a variety it is not homogeneous, but this is of no importance as to the purpose of these trials.

15. W Ile de France

O. France
C. France
Ile de France is very resistant to the 7X race, one of the highest marks being at 274: IV/2. New data on its reaction to the 2X race group are not present.

16. W Alba

O. Belgium
C. Belgium, Holland
Severe attack of Alba indicates the Alba-race, belonging to the Heine VII race group. With glasshouse differentials the Alba and Heine VII races cannot be separated. The adult plant reaction is indicative, as adult Alba is not severely attacked by the Heine VII race.

The results with Alba are more or less controversial. In the adult stage Alba was rather generally attacked by the Heine VII race, though only to a slight degree and on the inferior leaves only. Most records of Alba attack arrived later than those of Heine VII.

Severe attack of Alba is indicative for the presence of the Alba race. vide, 334, 351, 411 and 415 in Holland and Belgium, where Alba is cultivated. In Denmark (112) and in England (511, 512, 531 and 551), where Alba is not grown, some heavy attacks were recorded. These remain unexplained. Unfortunately Alba is very susceptible to leaf rust; this may give rise to errors of observation.

17. W Leda

O. Belgium
C. Belgium, Holland
In the adult stage Leda is fairly resistant to yellow rust, at least to the 7X race group. According to the experience in 1957 the young plant is susceptible to the Alba race. Marks of Leda parallel marks of Alba, though on a lower level. For the interpretation of the results the Leda records are of little help. Leda is very susceptible to leaf rust, also in the seedling stage. Some early and low records may be due to errors in observation.

18. W Triticum spelta album

The author has not yet observed any yellow rust on this variety. Several of the 1957 records could be traced to leaf rust. Leaf rust is certainly recorded as yellow rust in some of this year's trials.

The high records from 041 and 512 do not fit in with the general picture.

19. S Heine's Kolben

O. Germany
C. -
Heine's Kolben is very susceptible to the Heine VII race group. We have no information on its reaction to the Cappelle race group.

20. S Jufy I

O. Belgium
C. Belgium
Jufy I is very susceptible to the Heine VII race group and according to former information also to the Cappelle race group.

21. S Peko

O. Germany
C. Germany, Holland, Belgium, Luxemburg, Britain
Marks of Peko are generally 3 or more points lower than corresponding marks of Heine's Kolben. Some Dutch trials are exceptional in showing Peko marks 2 points lower to 1 point higher than the corresponding Heine's Kolben marks (vide 321, 334, 3451, 348 and 351).

These observations suggest a Peko race, a possibility already considered in 1956 and corroborated by field observations in 1957 and 1958. See also under Carsten V and Hybrid 46.

22. S Selkirk

O. Canada
C. -
Selkirk is very resistant to yellow rust, at least to the 7X race group.

A susceptible impurity of the variety was present in small amounts

23. S Redman

O. U.S.A.
C. -
A very useful rust indicator.

24. S Frontana

O. Bolivia
C. -
Frontana is moderately susceptible to the Heine VII race group. Highest marks 713: IV/6 and 3451: III/7.

Its reaction to the 2X race group is not known.

25. S Heine FR-9 barley

O. Germany
C. -
This entry is included for orientation on the distribution of yellow rust of barley. Attacks have been recorded in Sweden, Germany and Holland.

There is no evidence that this barley is susceptible to wheat rust races.

6. The countries (map I/A - B - C - D)

Austria — Slight infection reported from 911. In some mountainous regions yellow rust was present.

Belgium — Yellow rust in coastal region generally present; attacks on Alba and Heine VII locally heavy, generally moderate. Slight infection on Leda in some polders. Cappelle moderately affected in Flanders.

Denmark — Yellow rust appeared at the end of june. High records are exceptional.

France — First yellow rust observed at Montpellier on March 14th. First records from northern France in about the middle of May. Most trials gave high records.

Germany — Yellow rust of wheat was widely spread, but of little practical importance. Records from 211 controversial. Yellow rust of barley rather common.

Great Britain and Northern Ireland

Yellow rust was widely spread in England and Scotland. No records from Wales and Northern Ireland. In Northern Ireland some yellow rust was present in early June (MANNERS). Interesting anomalous records from 511 and 512.

Ireland — No yellow rust observed in the yellow rust trials.

Israël — Yellow rust found in April. Attack stopped by heat.

Italy — Yellow rust rare. First observations in late April (Rome) and May (Foggia).

Luxemburg — No yellow rust recorded.

Netherlands	Yellow rust in wheat was general, but appeared later than in 1957. Severe attacks with yield depression have been rare. This favourable development was partly due to the decrease of the Heine VII area and partly to the weather conditions in late winter. The Cappelle race group was present in the south-west on Cappelle and Staring, without causing much damage. The Alba race was locally active. The Peko race spread and showed a focal infection in all coastal districts. Yellow rust of barley was very active in 1958.
Norway	No yellow rust observed in the trials. Yellow rust focus present on breeding material at Vollebekk.
Poland	No yellow rust recorded.
Portugal	Focal infection present in southern Portugal in early April. Rust may belong to the Cappelle race group. First record on April 1st from Beja.
Spain	Focal infection present in southern Spain in early April. Infection stopped by heat. First record on March 26th from Murcia and Tabernas (SALAZAR and SANTIAGO).
Sweden	Yellow rust present at Svalöf. The record is anomalous on many points.
Switzerland	Yellow rust common. Severe epidemic in northern Switzerland, but a record wheat harvest (KOBEL). In the Rhone valley some yellow rust on wheat and a little on barley (CORBAS). It is highly probable that the yellow rust on wheat belongs to the Cappelle race group.
Yougoslavia	Some yellow rust was found at Novi Sad in the middle of June.

General and rather severe attacks were reported from Egypt by Dr. HASSEBRAUK. Mr. GRANDJOUAN reported an epidemic in the Saharan oases at the foot of the Atlas mountains. First infections were seen there in February.

HET "GELE-ROEST-VANGSORTIMENTEN-PROJEKT" IN 1958

door J.C. ZADOKS, biol.drs.

1. Inleiding

Het doel van het "gele-roest-vangsortimenten-projekt" is het verkrijgen van inlichtingen over:

1) het eerste optreden van de gele roest in verschillende streken;
2) de hoogste aantastingsgraad in verschillende streken bij gele-roestaantasting;
3) de verspreiding van de fysio's van de gele roest;
4) verschillen in reactie van tarwerassen bij gele-roestaantasting onder uiteenlopende klimaatsomstandigheden.

Het "gele-roest-vangsortimenten-projekt" wordt georganiseerd door het "Nederlands Graan-Centrum" te Wageningen. De "Biologische Bundesanstalt" (B.B.A., Brunswijk, Duitsland) determineerde gele-roestfysio's in de kas. Wij zijn veel dank verschuldigd aan de plaatselijke waarnemers, wier zorgvuldige waarnemingen dit projekt vorm en inhoud geven.

2. Overzicht van de waarnemingen

De cijfers in de bijgaande tabel, waarin dus alle waarnemingen bijeen zijn gebracht, zijn de hoogste gemelde aantastingsgraden per ras en per vangsortiment. Er is geen onderscheid gemaakt tussen de reactie-typen I, II, III en IV van de gele roest. Wanneer als reactietype 0 werd opgegeven, is in de tabel ook de aantastingsgraad als 0 opgenomen.

- = ras niet uitgezaaid, uitgevroren enz.

+ = gele-roestaantasting gemeld, maar aantastingsgraad onbekend

Voor een goede interpretatie van de gegevens van het vangsortimentenproject zijn deze gecorrigeerd op bruine roest. In een aantal gevallen is kennelijk bruine roest voor gele roest aangezien, hetgeen correctie op dit punt noodzakelijk maakte. Dergelijke correcties zijn echter alleen dan aangebracht, wanneer de diagnose "bruine roest" op grond van een zorgvuldige beschouwing van monsters en meldingsformulieren vast stond. Een aantal waarnemingen in de tabel geven nog moeilijkheden, vermoedelijk doordat eveneens bruine roest werd gewaardeerd, maar deze waarnemingen konden niet gecorrigeerd worden wegens gebrek aan bewijs.

3. Fysio-determinatie door middel van vangsortimenten

In het vorige rapport werden de gele-roestfysio's voorlopig ondergebracht in twee groepen. Een groep is verwant aan het Cappellefysio (voorlopig B.B.A.-nummer 2X), dat als type-fysio van deze groep dient. Een tweede groep is verwant aan het Heine's VII-fysio (voorlopig B.B.A.-nummer 7X). Fysio 7X dient als type-fysio van de tweede groep.

De normen voor de indeling van de gele roest in een van deze groepen zijn in het vorige rapport vermeld. Hieraan is thans nog een nieuwe norm toegevoegd, nl.:

2X groep 2) Cappelle $\geqslant$ 4 en Staring $\geqslant$ 4 en Cappelle = Staring ± 1

Het volledige overzicht van de fysio-indeling is in de Engelse tekst opgenomen (zie blz. 4). De resultaten zijn weergegeven op de kaarten III/A en III/B.

A = kunstmatige infektie in de omgeving van het vangsortiment

4. Fysio-determinatie in de kas

Fysio-determinatie in de kas wordt door de B.B.A. als routinetechniek uitgevoerd. Het grote aantal monsters veroorzaakte stagnatie in het werk. Nu een nieuwe kas in gebruik genomen is, hopen wij in het volgende rapport meer gedetailleerde gegevens over fysio's te kunnen opnemen. Het resultaat van de fysio-determinatie is in de Engelse tekst vermeld op blz. 4 en 5 (zie ook kaart II).

5. De tarwerassen

In tegenstelling tot het vorige rapport is de overzichtstabel in dit rapport dus gecorrigeerd op verkeerde waarnemingen met betrekking tot bruine roest. Alleen waarnemingen van planten met een ontwikkelingsstadium $\geqslant$ 10 werden in de tabel opgenomen. Bij een aantastingstype 0 werd in de tabel ook een aantastingsgraad 0 opgenomen.

De interpretatie van de waarnemingen, vermeld op blz. 5 e.v., is dus in wezen een verslag over de reactie van de volwassen plant. In het algemeen zijn jonge planten gevoeliger voor gele roest dan volwassen planten.

O = land van oorsprong, waar het tarweras gekweekt is

C = landen, waar het ras verbouwd wordt

S = zomertarwe

W = wintertarwe

6. De landen (zie kaarten I/A - B - C - D)

België	- Gele roest algemeen in de kuststreek, aantasting van Alba en Heine's VII plaatselijk ernstig, meestal echter matig. Lichte infektie op Leda in de Antwerpse polders. Cappelle matig aangetast in West-Vlaanderen. Plaatselijk ook meer gele roest in het binnenland.
Denemarken	- Gele roest verscheen eind juni. Weinig hoge aantastingsgraden gemeld.
Duitsland	- Gele roest van tarwe was algemeen aanwezig, maar had weinig praktische betekenis. Merkwaardig zijn de waarnemingen van 211. Gele roest van gerst was vrij algemeen in 1958.

Frankrijk - De eerste gele roest werd waargenomen te Montpellier op 14 maart. Eerste waarnemingen uit Noord-Frankrijk midden mei. Meestal hoge aantastingsgraden in Noord-Frankrijk.

Groot-Britannië en Noord-Ierland

Gele roest was algemeen aanwezig in Engeland en Schotland. Geen meldingen ontvangen van de vangsortimenten in Wales en Noord-Ierland. Merkwaardig zijn de meldingen van 511 en 512.

Ierland - Geen gele roest in de vangsortimenten waargenomen

Israël - Gele roest gevonden in april. De aantasting werd door een hittegolf gestopt.

Italië - Gele roest in zeer geringe mate aanwezig. Eerste waarnemingen eind april te Rome en half mei te Foggia.

Luxemburg - Geen gele roest waargenomen

Nederland - Gele roest op tarwe algemeen, maar later dan in 1957. Ernstige aantastingen met opbrengstderving waren zeldzaam. Deze gunstige gang van zaken is ten dele toe te schrijven aan de afname van het Heine's VII areaal, ten dele ook aan de weersomstandigheden in de nawinter.
De Cappelle-fysiogroep was aanwezig in het zuidwesten op Cappelle en Staring, zonder veel schade aan te richten. Het Alba-fysio was plaatselijk aanwezig in Zeeland, Zuid- en Noord-Holland. Het Peko-fysio breidde zich uit en gaf een focale aantasting in alle kustgebieden. De gele roest van gerst was erg actief.

Noorwegen - Geen gele roest in de vangsortimenten, wel op een proefveld te Vollebekk

Oostenrijk - Enige gele roest in vangsortiment 911. In sommige bergstreken was gele roest aanwezig.

Polen - Geen gele roest gemeld

Portugal - Begin april was in Zuid-Portugal een focale infektie aanwezig, welke misschien kan worden toegeschreven aan de Cappelle-fysiogroep. Eerste melding op 1 april te Beja

Spanje - In Zuid-Spanje werd begin april een focale infektie waargenomen. Infektie gestopt door hittegolf. Eerste waarneming 26 maart te Murcia en Tabernas (SALAZAR en SANTIAGO).

Yoügoslavië - Midden juni werd enige gele roest gevonden bij Novi Sad

Zweden - Gele roest waargenomen te Svalöf. Het infektiespectrum is in vele opzichten afwijkend.

Zwitserland - Gele roest was algemeen. Epidemie in Noord-Zwitserland, maar record_oogst (KOBEL). In het Rhône-dal enige gele roest op tarwe en ook iets op gerst (CORBAZ). De gele roest van tarwe behoorde waarschijnlijk tot de Cappelle-fysiogroep.

Een algemene en plaatselijk vrij ernstige aantasting werd gemeld uit Egypte (HASSEBRAUK). In de oases van de Sahara aan de voet van het Atlas-gebergte trad een ernstige gele-roestaantasting op. Eerste waarnemingen in februari (GRANDJOUAN).

Table 1 - Degree of infection by yellow rust in 1958 (Aantastingsgraad 1958)

		Variety (Ras) \ Trial (Vangsortiment)	Vollebekk 011	Hamar 012	Åmot 013	Svalöf 041	Landskrona 042	Grønning 111	Ødum 112	Horsens 113	Børkop 121	Askov 122	Esbjerg 123	Aarslev 131	København 141	Tystofte 142	Abed 151	Aakirkeby 161
1		Chinese-W	0	0	0	9	0	0	1	1	0	0	0	0	0	0	0	0
2		Reichersberg 42	0	-	-	6	0	-	-	-	0	-	-	-	0	-	0	-
3		Hybrid 46	0	-	-	6	0	-	-	-	0	-	-	-	0	-	0	-
4		Harvest Queen	0	0	0	9	0	0	9	4	0	0	0	0	4	1	0	0
5		Cappelle	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
6		Franc -Nord	0	0	0	7	0	0	8	1	0	0	0	0	3	0	0	0
7		Heine strain 110	0	-	-	5	0	-	-	-	0	-	-	-	0	-	0	-
8		Staring	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0
9		Rubis	0	-	-	9	0	-	9	5	0	0	0	0	7	1	0	0
10		Panter	0	-	-	5	0	-	-	-	0	-	-	-	0	-	0	-
11		Heine VII	0	0	0	9	0	0	7	2	0	0	0	0	4	0	0	0
12		Blé des Dômes	0	0	0	8	0	0	1	2	0	0	0	0	3	0	0	0
13		Carsten V	0	-	-	7	0	-	-	-	0	-	-	-	0	-	0	-
14		Persian	0	0	0	9	0	0	6	7	+	0	3	0	7	1	0	0
15		Ile de France	0	-	-	6	0	-	-	-	0	-	-	-	0	-	0	-
16		Alba	0	0	0	7	0	0	7	0	0	0	3	0	0	0	0	0
17		Leda	0	0	0	8	0	0	1	0	0	0	2	0	0	0	0	0
18		T. spelta album	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0
19	S	Heine's Kolben	0	-	-	8	0	-	-	-	0	-	-	-	0	-	0	-
20	S	Jufy I	0	-	-	7	0	-	-	-	+	-	-	-	0	-	0	-
21	S	Peko	0	-	-	5	0	-	-	-	0	-	-	-	0	-	0	-
22	S	Selkirk	0	-	-	0	0	-	-	-	0	-	-	-	0	-	0	-
23	S	Redman	0	-	-	9	0	-	-	-	+	-	-	-	5	-	0	-
24	S	Frontana	0	-	-	5	0	-	-	-	0	-	-	-	0	-	0	-
25	S	Heine FR 9 barley	0	-	-	7	0	-	-	-	0	-	-	-	0	-	0	-
		Highest record (Hoogste waarneming)	0	0	0	9	0	0	9	7	+	0	3	0	7	1	0	0
		Date of sowing	20/5	?	19/9	11/10	?	?	15/9	8/10	?	?	24/9	21/9	8/10	28/9	2/10	?
		(Zaaidatum)	20/5	-	-	17/5	?	-	-	-	?	-	-	-	14/4	-	1/5	-
		First record from trial (1e melding vangsort.)	-	-	-	1/8	-	-	4/7	28/6	18/7	-	10/7	-	28/6	26/6	-	-
		do, from neighbourhood (idem van omgeving)	11/8	-	-	1/8	-	-	-	28/6	?	30/6	1/8	-	4/7	24/6	-	-
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1 - Continued (Vervolg)

		Variety (Ras) / Trial (Vangsortiment)	Waterneversdorf	Upleward	Schnega	Braunschweig 7X	Braunschweig 54	Schöningen	Schladen	Voldagsen	Einbeck	Köln-Vogelsang	Albersloh	Giessen	Monsheim	Stuttgart-Hohenheim	Stuttgart-Karlshof
			211	222	224	2250	2251	226	227	228	229	231	232	241	251	261	262
1		Chinese-W	2	0	0	0	2	0	5	0	6	0	3	0	0	2	0
2		Reichersberg 42	8	0	0	0	0	0	-	0	4	0	-	-	-	0	0
3		Hybrid 46	0	0	0	0	6	0	-	0	0	0	-	-	-	1	0
4		Harvest Queen	10	9	9	4	7	10	9	7	10	3	8	9	2	5	5
5		Cappelle	0	0	0	0	3	0	2	0	2	0	3	0	0	0	0
6		Franc-Nord	9	6	5	6	4	6	7	0	0	3	2	3	1	0	0
7		Heine Strain 110	0	0	0	0	0	0	-	0	0	0	-	-	-	0	0
8		Staring	0	0	0	0	3	0	2	0	3	0	1	0	0	0	0
9		Rubis	10	10	9	4	10	9	10	8	10	4	5	10	1	5	0
10		Panter	8	3	0	0	4	4	-	0	3	0	-	-	-	1	0
11		Heine VII	9	8	6	3	8	6	6	6	6	4	3	7	8	1	1
12		Blé des Dômes	10	10	5	0	5	2	4	2	4	0	3	2	1	1	0
13		Carsten V	6	3	0	0	9	0	-	0	0	0	-	-	-	3	1
14		Persian	9	10	7	10	9	10	9	7	9	5	4	10	1	5	4
15		Ile de France	0	0	0	0	3	0	-	0	0	0	-	-	-	0	0
16		Alba	8	2	0	3	6	4	3	0	3	0	3	0	0	0	1
17		Leda	7	0	0	0	0	0	2	0	2	0	2	0	0	1	0
18		T. spelta album	3	0	0	0	0	0	0	0	0	0	2	0	0	0	0
19	S	Heine's Kolben	5	8	0	6	10	0	-	0	7	0	-	-	-	0	-
20	S	Jufy I	8	8	+	7	5	5	-	2	6	0	-	-	-	1	0
21	S	Peko	0	3	0	9	4	0	-	0	4	0	-	-	-	0	-
22	S	Selkirk	0	0	0	0	0	0	-	2	0	0	-	-	-	0	-
23	S	Redman	9	10	0	4	6	7	-	0	9	0	-	-	-	1	-
24	S	Frontana	0	0	0	0	4	0	-	0	0	0	-	-	-	0	-
25	S	Heine FR 9 barley	9	9	+	0	0	0	-	0	5	2	-	-	-	0	-
		Highest record (Hoogste waarneming)	10	10	9	10	10	10	10	8	10	5	8	10	8	5	5
		Date of sowing	15/11	7/10	17/10	1/10	1/10	31/10	25/11	1/11	30/10	11/10	4/11	2/11	23/10	10/10	?
		Zaaidatum	24/4	8/4	17/10	17/4	17/4	27/3	-	30/4	30/10	15/4	-	-	-	14/4	?
		First record from trial (1e melding vangsort.)	-	14/6	-	-	-	16/6	12/6	12/6	12/6	21/6	16/6	10/6	19/6	14/6	12/6
		do, from neighbourhood (idem van omgeving)	-	25/6	-	-	-	16/6	12/6	14/7	25/6	21/6	16/6	10/6	19/6	-	-
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	+	-	+	+	+	+	+	-	+	-	-	-	-	-	-

Table 1 - Continued (Vervolg)

		Variety (Ras) \ Trial (Vangsortiment)	Seligenstadt	Marktredwitz	Irlbach	Weihenstephan	Feldkirchen	Landsberg/Lech	Gross Lüsewitz	Halle-Hohenthurm	Halle-Hohenthurm	Halle-Stichelsdorf	Dornburg/Saale	Hadmersleben		Warszawa
			271	272	273	274	275	276	281	2821	2821	283	284	285		291
1		Chinese-W	3	0	0	0	0	0	0	5	0	4	0	6		-
2		Reichersberg 42	-	-	-	0	-	-	-	0	0	0	0	0		-
3		Hybrid 46	-	-	-	0	-	-	-	2	0	0	0	0		-
4		Harvest Queen	7	6	0	8	9	3	2	8	2	10	3	8		-
5		Cappelle	0	0	0	0	0	0	0	0	0	0	0	0		-
6		Franc-Nord	5	0	0	2	0	0	0	4	0	3	0	4		-
7		Heine Strain 110	-	-	-	0	-	-	-	0	0	0	0	0		-
8		Staring	0	0	0	0	0	0	0	0	0	0	0	0		-
9		Rubis	4	4	0	9	10	0	2	7	2	10	3	9		-
10		Panter	3	-	-	0	-	-	-	0	0	0	0	0		-
11		Heine VII	5	4	0	3	0	0	0	4	3	5	0	5		-
12		Blé des Dômes	5	0	0	0	0	0	0	3	0	5	0	4		-
13		Carsten V	-	-	-	0	-	-	-	5	0	4	4	0		-
14		Persian	5	2	0	8	9	0	2	9	3	10	7	8		-
15		Ile de France	-	-	-	2	-	-	-	0	0	0	0	4		-
16		Alba	3	0	0	0	0	0	0	3	0	0	0	0		-
17		Leda	0	0	0	0	0	0	0	0	2	0	0	0		-
18		T.spelta album	0	0	0	0	0	0	0	0	0	0	0	0		-
19	S	Heine's Kolben	-	-	-	2	-	-	-	2	0	6	0	7		0
20	S	Jufy I	-	-	-	3	-	-	-	2	2	5	0	5		0
21	S	Peko	-	-	-	0	-	-	-	0	0	0	0	2		0
22	S	Selkirk	-	-	-	0	-	-	-	0	0	0	0	0		0
23	S	Redman	-	-	-	7	-	-	-	5	4	7	2	8		0
24	S	Frontana	-	-	-	0	-	-	-	0	0	0	0	2		0
25	S	Heine FR 9 barley	-	-	-	10	-	-	-	0	2	0	0	0		0
		Highest record (Hoogste waarneming)	7	6	0	10	10	3	2	9	4	10	7	9		0
		Date of sowing	12/10	5/10	?	5/10	16/10	20/10	?	15/10	15/10	?	30/10	17/10		-
		(Zaaidatum)	-	-	-	15/4	-	-	-	15/4	15/4	24/4	30/4	8/4		30/4
		First record from trial	9/6	4/7	-	14/6	2/7	26/6	9/7	27/6	30/6	17/6	11/7	30/6		-
		(1e melding vangsort.)														-
		do, from neighbourhood	9/6	-	-	-	11/7	-	-	-	-	-	-	15/6		-
		(idem van omgeving)														
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-	+	-	-	-	+	-	+	+	-		-

Table 1 - Continued (Vervolg)

		Variety (Ras) \ Trial (Vangsortiment)	Westpolder	Nieuw-Beerta	Ferwerd	St.Anna Parochie	Groetpolder	Purmer	IJpolder	Hoofddorp	Bleiswijk	Westmaas	Middelharnis
			321	322	323	324	331	332	333	334	335	336	340
1		Chinese-W	0	5	-	3	0	2	3	0	0	2	0
2		Reichersberg 42	0	-	-	-	-	-	-	0	-	0	-
3		Hybrid 46	1	-	-	-	-	-	-	0	-	2	-
4		Harvest Queen	7	8	-	10	8	9	9	10	8	10	10
5		Cappelle	0	3	-	1	2	1	3	2	0	0	0
6		Franc-Nord	4	6	-	8	7	5	4	8	5	4	3
7		Heine Strain 110	0	-	-	-	-	-	-	0	-	0	-
8		Staring	0	4	-	0	2	0	2	0	0	0	3
9		Rubis	8	10	-	10	9	10	9	10	9	10	9
10		Panter	0	-	-	-	-	-	-	0	-	0	-
11		Heine VII	5	6	-	6	7	7	5	9	6	7	6
12		Blé des Dômes	3	6	-	4	7	5	4	8	6	3	7
13		Carsten V	0	-	-	-	-	-	-	0	-	0	-
14		Persian	8	9	-	9	8	8	8	10	9	8	10
15		Ile de France	0	-	-	-	-	-	-	0	-	0	-
16		Alba	2	0	-	0	5	3	5	8	2	4	5
17		Leda	0	2	-	0	0	0	0	1	0	2	4
18		T.spelta album	0	0	-	0	0	0	0	0	0	0	0
19	S	Heine's Kolben	6	-	5	-	-	-	-	9	-	4	-
20	S	Jufy I	5	-	5	-	-	-	-	9	-	4	-
21	S	Peko	5	-	3	-	-	-	-	8	-	2	-
22	S	Selkirk	2	-	2	-	-	-	-	-	-	0	-
23	S	Redman	7	-	9	-	-	-	-	9	-	6	-
24	S	Frontana	3	-	2	-	-	-	-	5	-	0	-
25	S	Heine FR 9 barley	4	-	8	-	-	-	-	4	-	3	-
		Highest record (Hoogste waarneming)	8	10	9	10	9	10	9	10	9	10	10
		Date of sowing	24/10	17/10	-	9/10	11/11	?	?	7/11	28/10	?	17/10
		(Zaaidatum)	12/4	-	9/5	-	-	-	-	5/3	-	?	-
		First record from trial	16/6	17/6	12/6	5/12	17/6	27/5	24/6	22/5	17/6	6/5	29/5
		(1e melding vangsort.)											
		do, from neighbourhood	20/6	17/6	+	5/12	17/6	27/5	24/6	22/5	+	+	29/5
		(idem van omgeving)											
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-	-	-	-	-	+	-	-	-

Table 1 - Continued (Vervolg)

		Variety (Ras) \ Trial (Vangsortiment)	Bruinisse	Wilhelmina dorp	Oudelande	Rilland Bath	Walcheren	Schoondijke	Hulst	Breezand	Wieringerwerf	Emmeloord	Marknesse	Ketelhaven	Lelystad	Knarhaven
			343	345	3451	346	347	348	349	350	351	352	354	355	356	357
1		Chinese-W	6	2	-	0	6	-	2	0	2	4	4	2	2	0
2		Reichersberg 42	-	-	-	0	-	-	-	-	2	-	1	-	-	-
3		Hybrid 46	-	-	-	2	-	-	-	-	0	1	-	-	-	-
4		Harvest Queen	3	8	-	10	10	-	7	0	10	9	10	9	4	2
5		Cappelle	0	3	-	0	6	-	0	0	0	2	4	2	0	0
6		Franc-Nord	4	5	-	9	8	-	3	0	7	7	4	8	0	0
7		Heine Strain 110	-	-	-	0	-	-	-	-	0	2	2	-	-	-
8		Staring	0	2	-	0	6	-	0	0	0	1	1	0	2	0
9		Rubis	10	8	-	10	10	-	7	0	10	10	10	9	8	0
10		Panter	-	-	-	2	-	-	-	-	2	0	-	-	-	-
11		Heine VII	4	5	-	10	9	-	3	0	10	8	8	9	7	0
12		Blé des Dômes	2	4	-	8	9	-	2	0	7	7	6	7	6	0
13		Carsten V	-	-	-	0	-	-	-	-	0	1	-	-	-	-
14		Persian	6	6	-	10	10	-	6	0	10	9	9	9	5	0
15		Ile de France	-	-	-	0	-	-	-	-	2	-	-	-	-	-
16		Alba	2	3	-	3	5	-	3	0	7	4	4	5	0	0
17		Leda	0	2	-	2	0	-	0	0	4	2	2	4	0	0
18		T. spelta album	1	0	-	0	0	-	0	0	0	0	0	0	0	0
19	S	Heine's Kolben	-	-	6	-	-	5	-	-	7	-	-	-	-	-
20	S	Jufy I	-	-	8	-	-	5	-	-	6	8	-	-	-	-
21	S	Peko	-	-	4	-	-	6	-	-	5	7	-	-	-	-
22	S	Selkirk	-	-	3	-	-	0	-	-	2	1	-	-	-	-
23	S	Redman	-	-	10	-	-	7	-	-	10	8	-	-	-	-
24	S	Frontana	-	-	7	-	-	5	-	-	6	6	-	-	-	-
25	S	Heine FR 9 barley	-	-	3	-	-	5	-	-	9	3	-	-	-	-
		Highest record (Hoogste waarneming)	10	8	10	10	10	7	7	0	10	10	10	9	8	2
		Date of sowing	?	29/10	-	11/11	11/10	-	?	19/11	15/11	?	8/11	31/10	21/11	21/11
		(Zaaidatum)	-	-	24/3	-	-	20/3	-	-	25/4	11/4	-	-	-	-
		First record from trial (1e melding vangsort.)	1/5	21/6	21/5	14/5	9/4	16/5	20/6	-	19/5	30/5	?	16/1	1/7	1/7
		do, from neighbourhood (idem van omgeving)	27/6	14/4	12/6	14/5	2/4	16/5	20/6	-	13/2	19/12	?	31/5	-	-
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-	+	-	-	-	-	-	-	-	-	-	-

Table 1 - Continued (Vervolg)

		Variety (Ras) / Trial (Vangsortiment)	Werkendam 361	Wageningen IPO 363	Andelst 365	Baarn 3671	Borgercompagnie 371	Rolde 374	Dongen 381	Maarheeze 382	Ottersum 384	Beesel 391	Wijnandsrade 392		Highest record from the Netherlands (Hoogste waarneming in Nederland)
1		Chinese-W	9	0	0	2	0	0	0	0	0	0	1		9
2		Reichersberg 42	-	3	-	0	-	-	-	-	-	-	-		3
3		Hybrid 46	-	0	-	6	-	-	-	-	-	-	-		6
4		Harvest Queen	10	3	0	8	7	6	3	0	2	2	5		10
5		Cappelle	0	0	0	0	0	0	0	0	0	0	0		6
6		Franc-Nord	4	0	0	0	0	0	2	0	0	0	6		9
7		Heine Strain 110	-	0	-	0	-	-	-	-	-	-	-		2
8		Staring	0	0	0	0	0	0	0	0	0	0	0		6
9		Rubis	10	3	2	9	8	6	3	2	0	2	10		10
10		Panter	-	0	-	0	-	-	-	-	-	-	-		2
11		Heine VII	8	0	0	8	3	3	2	0	0	0	6		10
12		Blé des Dômes	8	0	2	3	2	0	2	0	0	0	2		9
13		Carsten V	-	0	-	4	-	-	-	-	-	-	-		4
14		Persian	10	6	0	9	6	6	3	0	2	2	-		10
15		Ile de France	-	0	-	0	-	-	-	-	-	-	-		2
16		Alba	3	2	2	2	2	2	2	0	0	0	0		8
17		Leda	2	3	0	0	0	2	0	0	0	0	0		4
18		T. spelta album	0	0	0	0	0	0	0	0	0	0	0		1
19	S	Heine's Kolben	-	6	-	-	-	-	-	-	-	-	0		9
20	S	Jufy I	-	4	-	3	-	-	-	-	-	-	2		9
21	S	Peko	-	3	-	8	-	-	-	-	-	-	0		8
22	S	Selkirk	-	0	-	-	-	-	-	-	-	-	0		3
23	S	Redman	-	2	-	-	-	-	-	-	-	-	2		10
24	S	Frontana	-	0	-	-	-	-	-	-	-	-	0		7
25	S	Heine FR 9 barley	-	5	-	-	-	-	-	-	-	-	0		9
		Highest record (Hoogste waarneming)	10	6	2	9	8	6	3	2	2	2	10		10
		Date of sowing	16/11	11/10	25/10	17/10	?	11/11	?	?	7/11	30/10	30/10		
		(Zaaidatum)	-	12/3	-	13/3	-	-	-	-	8/3	-	14/4		
		First record from trial (1e melding vangsort.)	10/6	-	6/6	+	17/6	16/6	11/6	11/6	22/5	9/6	6/6		
		do, from neighbourhood (idem van omgeving)	10/6	-	6/6	+	?	-	11/6	-	-	9/6	6/6		
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	+	-	+	-	-	-	-	-	-	-		

Table 1 - Continued (Vervolg)

		Variety (Ras) / Trial (Vangsortiment)	411 Oostkerke	412 Lemberge	413 Roeselare	414 Stabroek	415 Wulpen	421 Poppel	422 Herentals	431 Leuven-Heverlee	432 Gembloux		491 Ettelbrück
1		Chinese-W	2	0	0	2	4	0	0	2	0		0
2		Reichersberg 42	-	-	-	-	-	-	-	0	0		-
3		Hybrid 46	-	-	-	-	-	-	-	0	0		-
4		Harvest Queen	10	9	7	4	10	1	0	7	9		0
5		Cappelle	6	0	0	0	7	0	0	0	0		0
6		Franc-Nord	4	2	2	2	6	0	0	0	7		0
7		Heine Strain 110	-	-	-	-	-	-	-	0	0		-
8		Staring	6	0	0	0	7	0	0	0	0		0
9		Rubis	10	3	10	2	9	2	2	8	9		0
10		Panter	-	-	-	-	-	-	-	0	0		-
11		Heine VII	8	3	3	2	9	0	0	5	8		0
12		Blé des Dômes	5	3	3	0	6	0	0	5	7		0
13		Carsten V	-	-	-	-	-	-	-	0	0		-
14		Persian	10	8	6	4	10	2	0	8	9		0
15		Ile de France	-	-	-	-	-	-	-	0	0		-
16		Alba	6	3	2	2	7	0	0	4	0		0
17		Leda	4	0	0	0	4	0	0	0	0		0
18		T. spelta album	0	0	0	0	0	0	0	0	0		0
19	S	Heine's Kolben	-	-	-	-	-	-	-	0	5		-
20	S	Jufy I	-	-	-	-	-	-	-	4	5		-
21	S	Peko	-	-	-	-	-	-	-	0	0		-
22	S	Selkirk	-	-	-	-	-	-	-	0	0		-
23	S	Redman	-	-	-	-	-	-	-	6	9		-
24	S	Frontana	-	-	-	-	-	-	-	0	0		-
25	S	Heine FR 9 barley	-	-	-	-	-	-	-	0	0		-
		Highest record (Hoogste waarneming)	10	9	10	4	10	2	2	8	9		0
		Date of sowing	9/11	?	?	21/11	?	30/10	17/9	29/10	15/10		?
		(Zaaidatum)	-	-	-	-	-	-	-	6/3	9/4		
		First record from trial (1e melding vangsort.)	22/5	19/6	27/5	9/6	16/5	16/6	16/6	9/6	20/5		-
		do, from neighbourhood	22/5	19/6	?	16/6	16/5	-	-	2/6	20/5		
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-	-	-	-	-	+	-		-

Table 1 - Continued (Vervolg)

		Variety (Ras) / Trial (Vangsortiment)	Boghall-Edinburgh	Auchinoruive	Cockle Park	Headly Hall	Cambridge N.I.A.B.	Cambridge P.B.I.	Sprowston	Sutton Bonington	Grimsby	Harper Adams'	Stourbridge	Sunninghill
			511	512	531	532	541	542	543	544	545	551	552	553
1		Chinese-W	0	2	5	0	1	0	-	0	1	0	0	0
2		Reichersberg 42	5	-	-	-	0	0	-	-	0	0	0	0
3		Hybrid 46	0	-	-	-	0	0	-	-	0	0	0	0
4		Harvest Queen	10	5	10	2	3	6	-	1	9	10	9	6
5		Cappelle	4	4	0	0	0	0	-	0	0	2	3	0
6		Franc-Nord	8	5	8	0	1	2	-	0	7	9	6	3
7		Heine Strain 110	0	-	-	-	0	0	-	-	1	0	0	0
8		Staring	0	2	0	0	0	0	-	0	0	3	0	0
9		Rubis	10	7	8	2	2	5	-	6	10	10	9	6
10		Panter	3	-	-	-	0	0	-	-	0	0	0	0
11		Heine VII	8	5	9	2	0	4	-	1	7	10	6	5
12		Blé des Dômes	7	5	7	0	0	0	-	1	6	10	9	5
13		Carsten V	7	-	-	-	0	0	-	-	0	2	0	0
14		Persian	10	7	10	2	0	5	-	5	7	10	9	5
15		Ile de France	0	-	-	-	0	0	-	-	0	0	0	0
16		Alba	5	5	6	0	0	0	-	0	1	5	0	0
17		Leda	3	0	0	0	0	0	-	0	0	2	0	0
18		T. spelta album	0	5	0	0	0	0	-	0	0	0	0	0
19	S	Heine's Kolben	4	-	-	-	0	3	0	-	-	6	0	-
20	S	Jufy I	8	-	-	-	0	4	0	-	-	8	3	-
21	S	Peko	0	-	-	-	0	0	0	-	-	2	0	-
22	S	Selkirk	0	-	-	-	0	0	0	-	-	0	0	-
23	S	Redman	9	-	-	-	0	7	0	-	-	9	8	-
24	S	Frontana	4	-	-	-	0	0	0	-	-	0	0	-
25	S	Heine FR 9 barley	0	0	-	-	0	0	0	-	-	0	0	-
		Highest record (Hoogste waarneming)	10	7	10	2	3	7	0	6	10	10	9	6
		Date of sowing	6/9	8/10	7/11	15/11	6/11	19/9	24/3	19/11	4/11	7/10	23/10	3/10
		(Zaaidatum)	25/3	-	-	-	6/3	1/4	-	-	-	?	18/3	-
		First record from trial (1e melding vangsort.)	26/5	20/8	7/7	15/6	3/6	14/6	-	17/6	25/6	13/5	16/6	6/6
		do, from neighbourhood (idem van omgeving)	25/7	20/8	7/7	24/6	17/6	14/6	17/6	12/6	25/6	13/5	16/6	-
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-	-	-	+	-	-	-	-	-	-

Table 1 - Continued (Vervolg)

		Variety (Ras) / Trial (Vangsortiment)	Trawscoed 561	Plas Goggardan 562	Rosemaund 571	Seale-Hayne 572	Wye 581	Sparsholt 582	Southampton 583	Loughgall 591		Dublin 611	Wexford 621	Midleton 631
1		Chinese-W	0	0	0	0		0	0	0		0	0	0
2		Reichersberg 42	-	0	-	-		-	-	-		0	-	-
3		Hybrid 46	-	0	-	-		-	-	-		0	-	-
4		Harvest Queen	0	0	4	0		6	6	0		0	0	0
5		Cappelle	0	0	0	0		0	0	0		0	0	0
6		Franc-Nord	0	0	0	0		4	0	0		0	0	0
7		Heine Strain 110	-	0	-	-		-	-	-		0	-	-
8		Staring	0	0	0	0		0	0	0		0	0	0
9		Rubis	0	0	3	0		7	0	0		0	0	0
10		Panter	-	0	-	-		-	-	-		0	-	-
11		Heine VII	0	0	2	0		5	6	0		0	0	0
12		Blé des Dômes	0	0	0	0		3	0	0		0	0	0
13		Carsten V	-	0	-	-		-	-	-		0	-	-
14		Persian	0	0	5	0		2	7	0		0	0	0
15		Ile de France	-	0	-	-		-	-	-		0	-	-
16		Alba	0	0	0	0		4	0	0		0	0	0
17		Leda	0	0	0	0		1	0	0		0	0	0
18		T. spelta album	0	0	0	0		0	0	0		0	0	0
19	S	Heine's Kolben	-	0	-	-		-	0	-		0	-	0
20	S	Jufy I	-	0	-	-		-	0	-		0	-	0
21	S	Peko	-	0	-	-		-	0	-		0	-	0
22	S	Selkirk	-	0	-	-		-	0	-		0	-	0
23	S	Redman	-	0	-	-		-	0	-		0	-	0
24	S	Frontana	-	0	-	-		-	0	-		0	-	0
25	S	Heine FR 9 barley	-	0	-	-		-	0	-		0	-	0
		Highest record (Hoogste waarneming)	0	0	5	0		7	7	0		0	0	0
		Date of sowing	?	?	8/10	?		25/10	2/4	?		?	?	7/11
		(Zaaidatum)	-	-	-	-		-	2/4	-		-	-	21/4
		First record from trial (1e melding vangsort.)	-	-	1/7	-		25/6	30/7	-		-	-	11/6
		do, from neighbourhood (idem van omgeving)	-	-	1/7	-		10/7	-	-		-	-	-
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-	-		-	-	-		-	-	-

Table 1 - Continued (Vervolg)

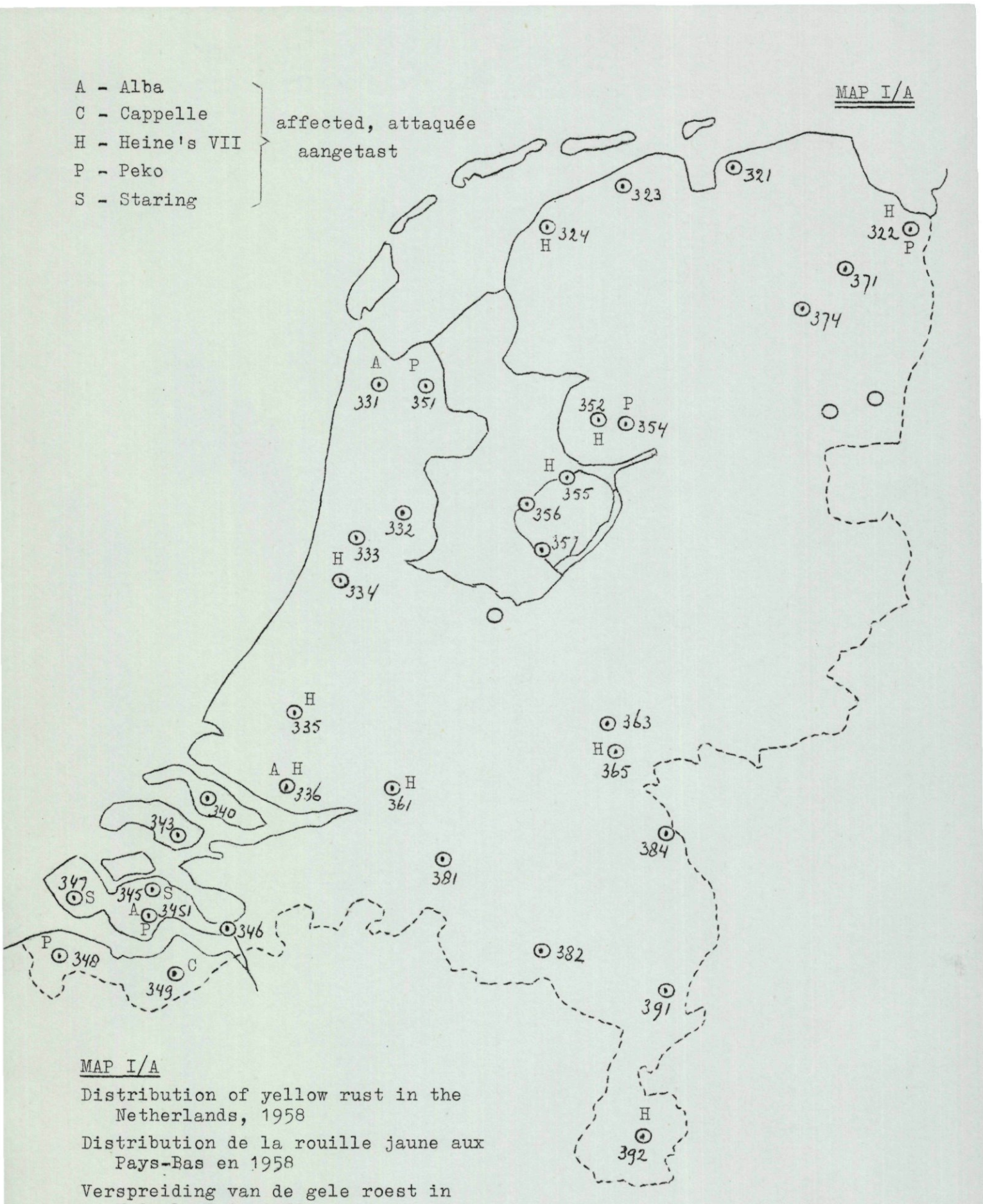
		Variety (Ras) / Trial (Vangsortiment)	Cappelle	Auchy-lez-Orchies	Estrées-St-Denis	Versailles	Grignon	Montfort l'Amaury	Coulommiers	Rennes	Blois	Chatillon s. Seine	Dijon	Clermont Ferrand	Rodez	Montpellier	Valence	Ondes
			701	702	711	712	713	714	715	722	731	741	742	761	762	771	772	791
1		Chinese-W	0	0	0	0	0	0	2	0	+	0	0	3	0	0	0	0
2		Reichersberg 42	0	0	0	0	0	0	0	-	-	-	0	0	-	0	-	-
3		Hybrid 46	0	0	0	0	0	0	0	-	-	-	0	0	-	0	-	-
4		Harvest Queen	2	10	9	10	8	10	10	10	8	0	0	10	0	+	+	7
5		Cappelle	0	2	0	1	3	2	1	7	0	0	0	0	0	0	0	4
6		Franc-Nord	0	6	4	10	3	7	8	6	0	0	0	3	0	0	0	0
7		Heine Strain 110	0	0	0	0	0	0	0	-	-	-	0	0	-	0	-	-
8		Staring	0	1	0	4	0	0	0	4	0	0	0	2	0	0	0	0
9		Rubis	2	10	10	10	8	10	10	10	8	+	0	10	0	+	0	5
10		Panter	0	0	0	0	0	0	0	-	-	-	0	0	-	0	-	-
11		Heine VII	0	8	6	10	4	7	8	9	0	0	0	3	0	0	0	0
12		Blé des Dômes	0	8	0	8	2	3	2	9	5	0	0	2	0	0	0	0
13		Carsten V	0	0	0	0	0	1	0	-	-	-	0	0	-	0	-	-
14		Persian	2	7	8	10	6	8	8	9	8	+	+	6	0	0	+	0
15		Ile de France	0	0	0	0	0	1	0	-	-	-	0	0	-	0	-	-
16		Alba	0	1	0	0	0	0	0	3	0	0	0	0	0	0	0	0
17		Leda	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0
18		T. spelta album	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	S	Heine's Kolben	0	6	0	-	4	6	3	-	-	-	0	3	-	0	-	-
20	S	Jufy I	0	5	0	-	4	7	0	-	-	-	0	2	-	0	-	-
21	S	Peko	0	2	0	-	0	1	0	-	-	-	0	3	-	0	-	-
22	S	Selkirk	0	0	0	-	0	0	0	-	-	-	0	0	-	0	-	-
23	S	Redman	0	7	0	-	8	6	8	-	-	-	0	4	-	+	-	-
24	S	Frontana	0	0	0	-	6	0	0	-	-	-	0	3	-	0	-	-
25	S	Heine FR 9 barley	0	0	0	-	0	0	0	-	-	-	0	0	-	0	-	-
		Highest record (Hoogste waarneming)	2	10	10	10	8	10	10	10	8	+	+	10	0	+	+	7
		Date of sowing	13/11	8/11	18/10	?	21/10	5/11	25/10	21/11	?	?	?	13/11	?	23/1	?	8/11
		(Zaaidatum)	27/3	12/4	29/3	?	17/3	2/4	25/3	-	-	-	31/3	24/2	-	23/1	-	-
		First record from trial (1e melding vangsort.)	6/6	25/6	23/5		17/5	29/5	13/5	19/5	28/6	21/6	23/7	9/6	-	5/5	6/6	3/6
		do, from neighbourhood (idem van omgeving)	6/6	25/6	9/6	-	31/5		13/5				-	6/6	-	14/3	-	-
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 1 - Continued (Vervolg)

		Variety (Ras) \ Trial (Vangsortiment)	Cery/Lausanne	Zürich/Reckenholz	Haag-Gams	Realta	Maran/Arosa	Sembracher			Reichersberg	Petzenkirchen	Fuchsenbigl	Drauhofen	St. Donat
			811	831	841	853	854	861			911	915	916	917	918
1		Chinese-W	0	0	0		2				0	0	-	0	0
2		Reichersberg 42	0	0	-		-				0	0	-	0	0
3		Hybrid 46	0	0	-		-				0	0	-	0	0
4		Harvest Queen	4	3	5		9				0	0	-	0	0
5		Cappelle	0	0	4		3				0	0	-	0	0
6		Franc-Nord	0	0	0		0				0	0	-	0	0
7		Heine Strain 110	0	0	-		-				0	0	-	0	0
8		Staring	0	0	4		5				0	0	-	0	0
9		Rubis	0	0	0		0				0	0	-	0	0
10		Panter	0	0	-		-				0	0	-	0	0
11		Heine VII	0	0	0		0				0	0	-	0	0
12		Blé des Dômes	0	0	0		0				0	0	-	-	-
13		Carsten V	0	0	-		-				0	0	-	0	0
14		Persian	3	3	5		6				0	0	-	0	0
15		Ile de France	0	0	-		-				0	0	-	0	0
16		Alba	0	0	0		0				0	0	-	0	0
17		Leda	0	0	0		0				0	0	-	0	0
18		T. spelta album	0	0	0		0				0	0	-	-	0
19	S	Heine's Kolben	0	0	-		-				0	0	0	-	-
20	S	Jufy I	0	0	-		-				0	0	0	-	-
21	S	Peko	0	0	-		-				0	0	0	-	-
22	S	Selkirk	0	0	-		-				0	0	0	-	-
23	S	Redman	2	3	-		-				+	0	0	-	-
24	S	Frontana	0	0	-		-				0	0	0	-	-
25	S	Heine FR 9 barley	0	0	-		-				0	0	0	-	-
		Highest record (Hoogste waarneming)	4	3	5		9				+	0	0	0	0
		Date of sowing	17/10	9/10	?		1/12				?	22/10	-	?	?
		(Zaaidatum)	31/3	16/4	-		-				?	21/4	25/4	-	-
		First record from trial (1e melding vangsort.)	17/6	16/6	6/6		?				15/7	-	-	-	-
		do, from neighbourhood (idem van omgeving)	23/6	16/6	?		?				-	?	?	?	?
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-	-	-		-				-	-	-	-	-

Table 1 - Continued (Vervolg)

		Variety (Ras) \ Trial (Vangsortiment)	Novi-Sad		Bergamo	Lonigo	Bologna	Firenze	Firenze	Roma	Foggia		Zaragoza	Madrid		Oeiras	Elvas		Hof Asdod	Rehovot
			925		931	932	933	935	936	937	938		951	952		973	975		991	992
1		Chinese-W			0	0	0	0		1	0		0	0		0	0		0	0
2		Reichersberg 42			-	-	-	-		-	-		-	-		-	-		-	-
3		Hybrid 46			-	-	-	-		-	-		-	-		-	-		-	-
4		Harvest Queen			0	0	0	0		5	+		0	3		4	8		0	0
5		Cappelle			0	0	0	0		+	0		0	0		4	5		0	0
6		Franc-Nord			0	0	0	0		0	0		0	0		3	5		0	0
7		Heine Strain 110			-	-	-	-		-	-		-	-		-	-		-	-
8		Staring			0	0	0	0		0	0		0	0		0	5		0	0
9		Rubis			0	0	0	0		0	0		4	0		9	9		0	0
10		Panter			-	-	-	-		-	-		-	-		-	-		-	-
11		Heine VII			0	0	0	0		0	0		0	0		0	0		0	0
12		Blé des Dômes			0	0	0	0		0	0		0	0		0	5		0	0
13		Carsten V			-	-	-	-		-	-		-	-		-	-		-	-
14		Persian			0	0	0	0		1	0		0	0		6	9		0	0
15		Ile de France			-	-	-	-		-	-		-	-		-	-		-	-
16		Alba			0	0	0	0		0	0		0	0		0	0		0	0
17		Leda			0	0	0	0		0	0		0	0		0	0		0	0
18		T. spelta album			0	0	0	0		0	0		0	0		0	0		0	0
19	S	Heine's Kolben			-	-	-	-		-	-		-	-		-	-		-	-
20	S	Jufy I			-	-	-	-		-	-		-	-		-	-		-	-
21	S	Peko			-	-	-	-		-	-		-	-		-	-		-	-
22	S	Selkirk			-	-	-	-		-	-		-	-		-	-		-	-
23	S	Redman			-	-	-	-		-	-		-	-		-	-		-	-
24	S	Frontana			-	-	-	-		-	-		-	-		-	-		-	-
25	S	Heine FR 9 barley			-	-	-	-		-	-		-	-		-	-		-	-
		Highest record (Hoogste waarneming)			0	0	0	0		5	+		4	3		9	9		0	0
		Date of sowing	?		31/10	3/11	?	?		19/11	?		26/11	25/11		16/1	30/11		?	?
		(Zaaidatum)			-	-	-	-		-	-		-	-		-	-		-	-
		First record from trial (1e melding vangsort.)	-		10/6	-	-	-		30/4	12/5		6/6	4/6		8/5	9/4		-	-
		do, from neighbourhood (idem van omgeving)	14/6		-	-	?	?		-	-		-	4/6		-	+		-	24/4
		Artificial infection in neighbourhood (Kunstmatige infektie in nabijheid)	-		-	-	-	-		-	-		-	-		-	-		-	-



MAP I/A

Distribution of yellow rust in the Netherlands, 1958

Distribution de la rouille jaune aux Pays-Bas en 1958

Verspreiding van de gele roest in Nederland in 1958

○ = Yellow rust recorded / présence de la rouille jaune rapportée / gele roest gemeld

• = Yellow rust trial / collection-piège de la rouille jaune / vangsortiment

1 : 1.400.000

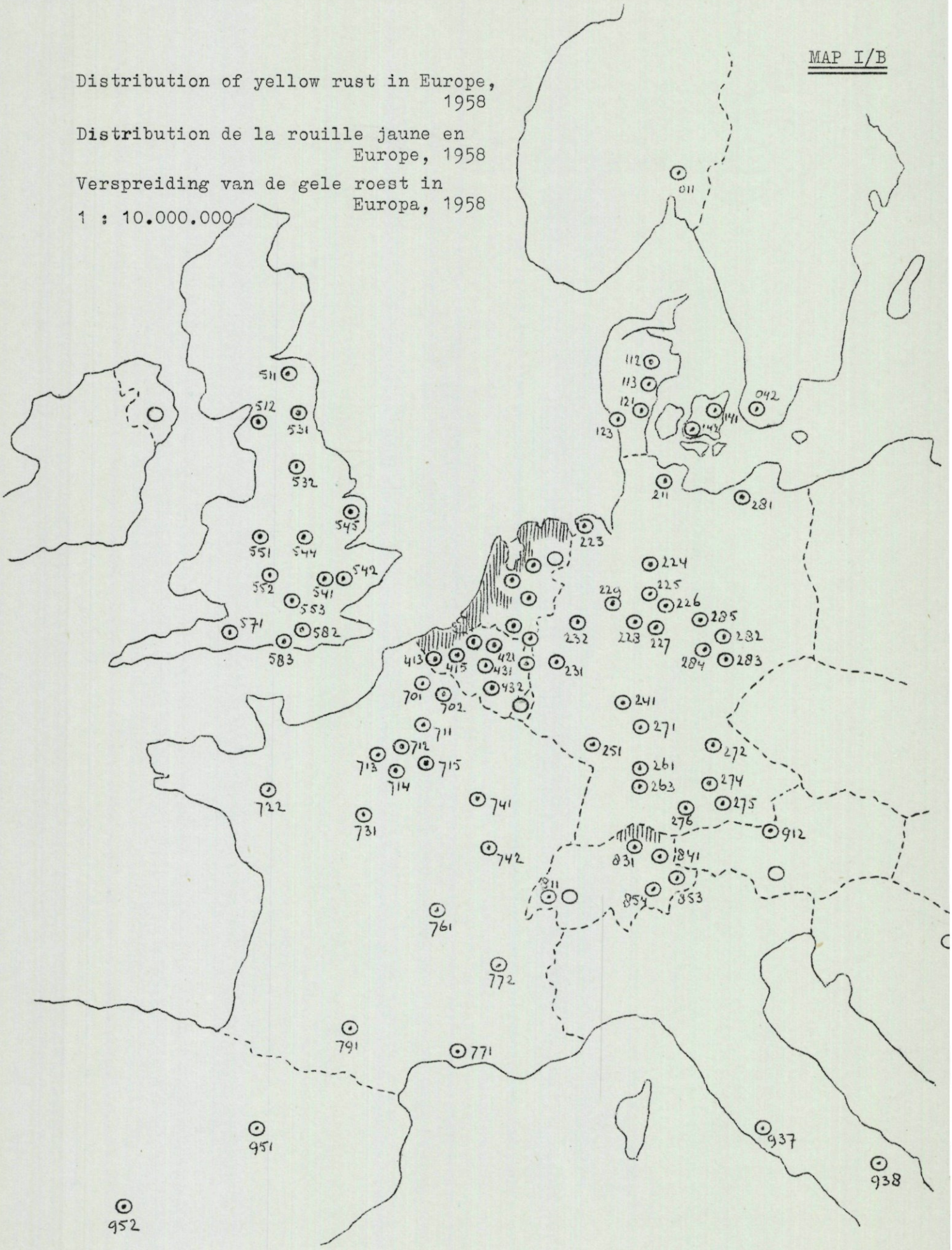
MAP I/B

Distribution of yellow rust in Europe, 1958

Distribution de la rouille jaune en Europe, 1958

Verspreiding van de gele roest in Europa, 1958

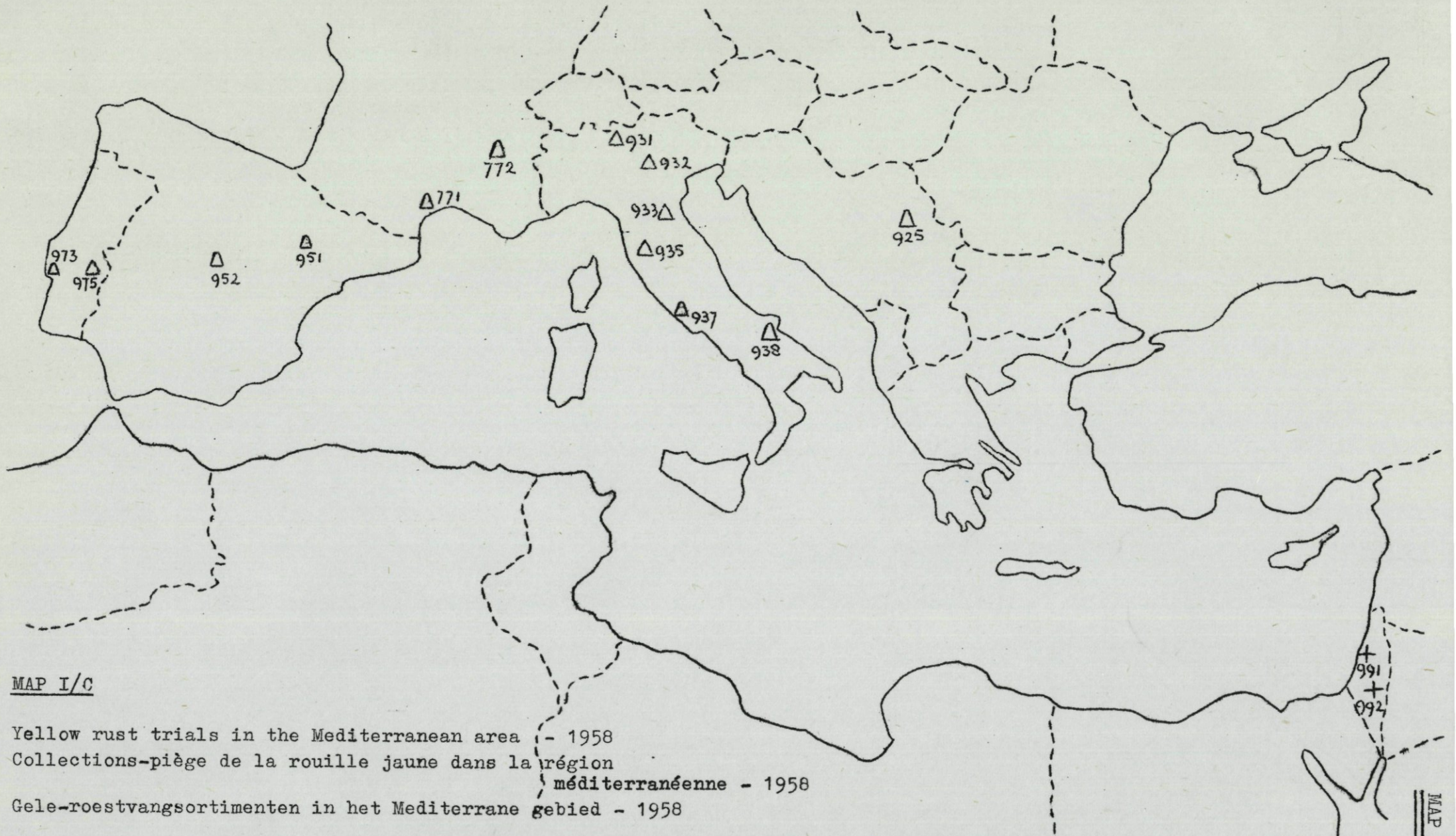
1 : 10.000.000



○ = Yellow rust recorded / présence de la rouille jaune rapportée / gele roest gemeld

• = Yellow rust trial / collection-piège de la rouille jaune / vangsortiment

▥ = Yellow rust of general occurrence or epidemic / rouille jaune générale on épidémique / gele roest algemeen of epidemisch



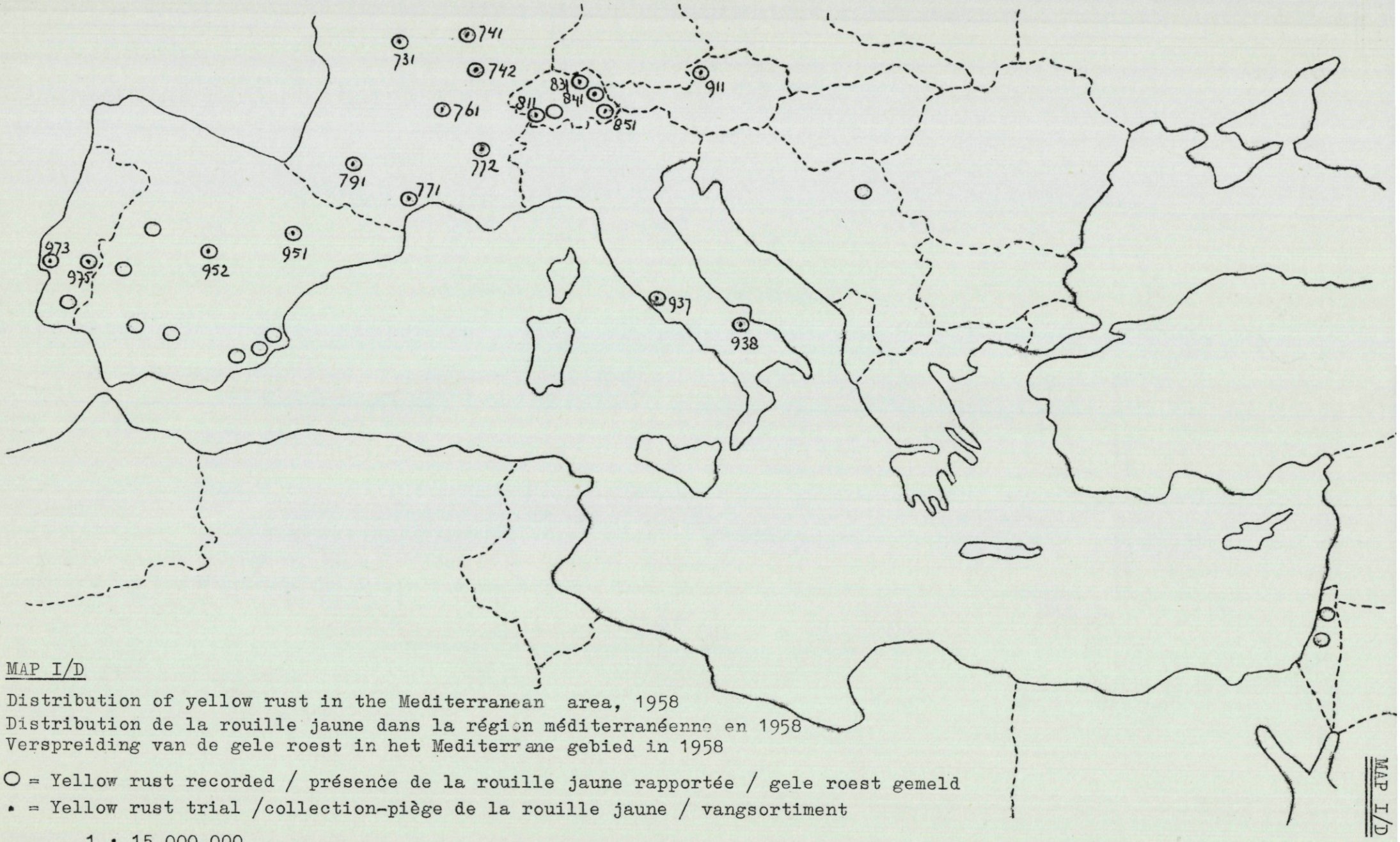
MAP I/C

Yellow rust trials in the Mediterranean area - 1958
Collections-piège de la rouille jaune dans la région méditerranéenne - 1958
Gele-roestvangsortimenten in het Mediterrane gebied - 1958

+ = complete collection / collection complète / volledig sortiment
Δ = reduced collection / collection restreinte / beperkt sortiment

1 : 15.000.000

MAP I/C



MAP I/D

Distribution of yellow rust in the Mediterranean area, 1958
Distribution de la rouille jaune dans la région méditerranéenne en 1958
Verspreiding van de gele roest in het Mediterrane gebied in 1958

○ = Yellow rust recorded / présence de la rouille jaune rapportée / gele roest gemeld
• = Yellow rust trial /collection-piège de la rouille jaune / vangsortiment

1 : 15.000.000

MAP I/D

MAP II

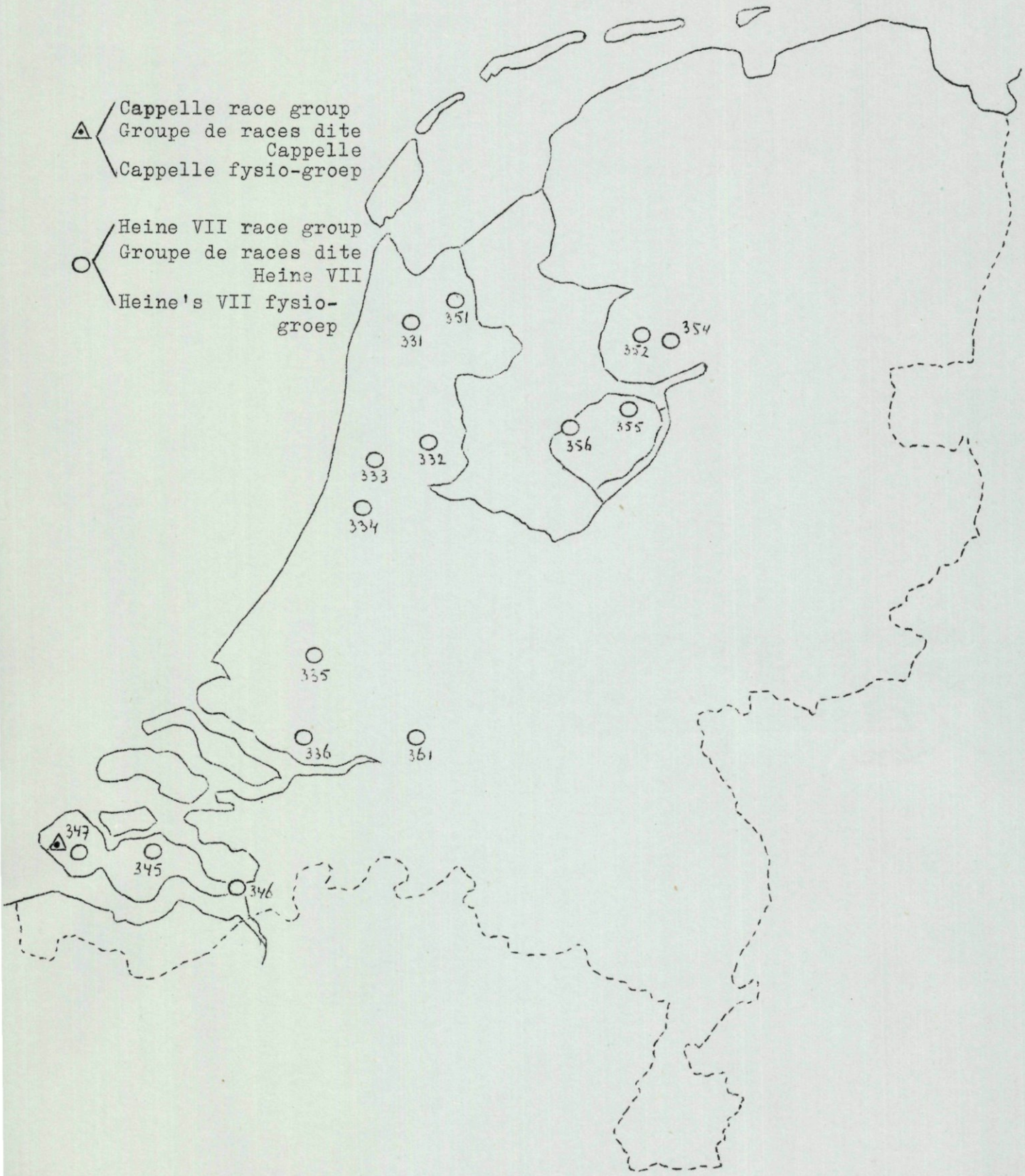
Distribution of yellow rust races according to glass house identification up to 1958

Distribution des races physiologiques de la rouille jaune selon les déterminations en serre jusqu'à 1958

Verspreiding van de gele-roestrassen volgens determinaties in de kas tot en met 1957

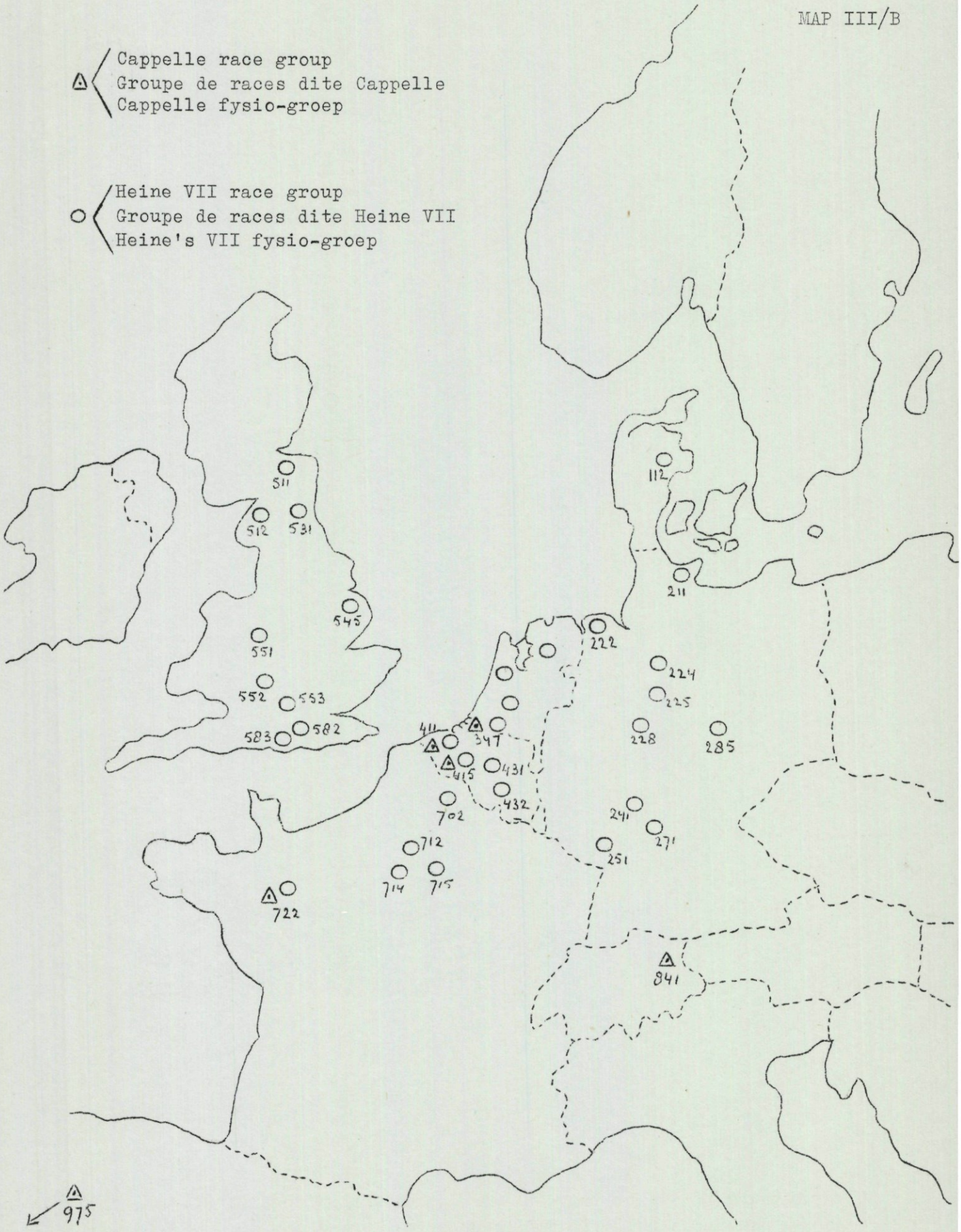
1 : 10.000.000

MAP III/A



Race groups of yellow rust, according to field identification, 1958
Groupes de races physiologiques de la rouille jaune en 1958, identifiées au champ
Fysio-groepen van de gele roest volgens velddeterminatie, 1958

1 : 1.400.000



Race groups of yellow rust, according to field identification, 1958

Groupes de races physiologiques de la rouille jaune en 1958, identifiées au champ

Fysio-groepen van de gele roest volgens velddeterminatie, 1958

1 : 10.000.000

Appendix - Annexe - Bijlage

List of Plant Breeders, Plant Breeding Stations, Experiment Stations, Extension Services, Institutes and Agricultural Colleges, having participated in the Yellow Rust Trials Project.

Liste des Sélectionneurs, des Stations d'Amélioration des Plantes de Grande Culture, des Stations Agronomiques, des Services Agricoles, des Instituts Agronomiques et des Ecoles d'Agriculture. qui ont participé dans le programme des "Essais d'interception de la rouille jaune".

Lijst van Kwekers, Veredelingsbedrijven, Proefstations, Voorlichtingsdiensten, Instituten en Landbouwscholen, die aan het gele-roestvangsortimentenproject hebben deelgenomen.

0 NORGE - SVERIGE

0.1 NORGE

0.1 Oslo-Hamar

0.1.1 Vollebekk, Norges Landbrukshøgskoles Åkervekstforsøk
0.1.2 Hamar, Statens Forsøksgard Møystad
0.1.3 Åmot, Buskerud Landbruksskole
0.1.4 Sarpsborg, Kalnes Jordbruksskole

0.4 SVERIGE

0.4 Skåne

0.4.1 Svalöf, Sveriges Utsädesförening
0.4.2 Landskrona, Weibullsholm Växtförädlingsanstalt

1 DANMARK

1.1 Nørre-Jylland

1.1.1 Grønning, Pajbjergfonden
1.1.2 Ødum, Statens Forsøgsstation i Plantekultur
1.1.3 Horsens, Landbrugets Kornforaedling, Sejet

1.2 Sønder-Jylland

1.2.1 Børkop, Pajbjergfonden
1.2.2 Askov, Statens Forsøgsstation
1.2.3 Esbjerg, Statens Forsøgsstation

1.3 Fyn

1.3.1 Aarslev, Statens Forsøgsstation i Plantekultur

1.4 Sjaelland

1.4.1 København, Den Kgl. Veterinaer- & Landbohøjskole, Landbrugets Plantekultur
1.4.2 Tystofte, Statens Forsøgsstation i Plantekultur

1.5 Lolland/Falster

1.5.1 Abed, Plant Breeding Station

1.6 Bornholm

1.6.1 Aakirkeby, Statens Forsøgsareal

2 DEUTSCHLAND

2.1 Schleswig-Holstein

2.1.1 Waterneverstorf, "Nordsaat" Saatgutgesellschaft

2.2 Niedersachsen

2.2.2 Upleward, Landwirtschaftskammer Weser-Ems
2.2.4 Schnega, Saatzucht Ferdinand Heine
2.2.5.0,1 Braunschweig-Gliesmarode, Biologische Bundesanstalt
2.2.6 Schöningen, Saatzuchtwirtschaft Fr. Strube
2.2.7 Schladen, Saatzuchtwirtschaft Otto Breustedt
2.2.8 Domäne Voldagsen über Kreiensen, Wilhelm Rimpau Saatzucht-Wirtschaften
2.2.9 Einbeck, Klein Wanzlebener Saatzucht

2.3 Rheinland/Westfalen

2.3.1 Köln-Vogelsang, Max-Planck-Institut für Züchtungsforschung
2.3.2 Albersloh, Westfälische Central-Genossenschaft, Versuchsgut

2.4 Hessen

2.4.1 Giessen, Institut für Phytopathologie der Justus-Liebig-Hochschule

2.5 Rhein-Pfalz

2.5.1 Monsheim, Saatzucht Ferdinand Heine

2.6 Würtemberg/Baden

2.6.1 Stuttgart-Hohenheim, Institut für Pflanzenbau und Pflanzenzüchtung
2.6.2 Stuttgart-Karlshof, " " " " "

2.7 Bayern

2.7.1 Seligenstadt, Klein Wanzlebener Saatzucht
2.7.2 Marktredwitz, Nordostbayerischer Saatbauverband
2.7.3 Irlbach, Dr. J.Ackermann & Co. Saatzucht
2.7.4 Weihenstephan/Freising, Bayerische Landessaatzuchtanstalt
2.7.5 Feldkirchen, Saatzuchtwirtschaft Hans Schweiger
2.7.6 Landsberg/Lech, Landwirtschaftliche Lehranstalten des Bezirks Oberbayern

2.8 Ost-Deutschland

2.8.1 Gross-Lüsewitz, Institut für Pflanzenzüchtung der D.A.L. Berlin
2.8.2.1,2 Hohenthurm bei Halle, Institut für Pflanzenzüchtung
2.8.3 Halle-Stichelsdorf, Phytopathologisches Institut der Martin-Luther-Universität
2.8.4 Dornburg am Saale, Institut für Pflanzenzüchtung
2.8.5 Hadmersleben, Forschungsstelle für Getreidezüchtung

2.9 POLSKA (POLEN)

2.9.1 Warszawa, Hochschule für Landwirtschaft, Institut für Phytopathologie

3. NEDERLAND

3.2 Noordelijke kleistreek

3.2.1 Westpolder, Dr. R.J. Mansholt's Veredelingsbedrijf
3.2.2 Nieuw-Beerta, Proefboerderij Jacob Sijpkens' Heerd
3.2.3 Ferwerd, Rijkslandbouwvoorlichtingsdienst
3.2.4 Sexbierum, Rijkslandbouwvoorlichtingsdienst

3.3 Westelijke kleistreek

3.3.1 Groetpolder, Rijkslandbouwvoorlichtingsdienst
3.3.2 Purmer , " "
3.3.3 IJpolder , " "
3.3.4 Hoofddorp, Veredelingsbedrijf "Centraal Bureau"
3.3.5 Bleiswijk, Rijkslandbouwvoorlichtingsdienst
3.3.6 Westmaas, Proefboerderij Mariënhof

3.4 Zuidwestelijke kleistreek

3.4.0 Middelharnis (Overflakkee), Rijkslandbouwvoorlichtingsdienst
3.4.3 Bruinisse, Proefboerderij De Scheldemonden
3.4.5 Wilhelminadorp, Proefboerderij Zeeland
3.4.5.1 Oudelande, Rijkslandbouwvoorlichtingsdienst
3.4.6 Rilland-Bath, D.J. van der Have's Kon. Kweekbedrijf
3.4.7 Walcheren, Rijkslandbouwvoorlichtingsdienst
3.4.8 Schoondijke (Zeeuws-Vlaanderen), Rijkslandbouwvoorlichtingsdienst
3.4.9 Hulst (Zeeuws-Vlaanderen), Rijkslandbouwvoorlichtingsdienst

3.5 Zuiderzeepolders

3.5.0 Breezand, Stichting Nederlands Graan-Centrum
3.5.1 Wieringerwerf (Wieringermeer), Proefboerderij Prof.Dr. J.M. van Bemmelenhoeve
3.5.2 Emmeloord (N.O.P.), Kweekbedrijf Fa. Geertsema
3.5.4 Marknesse (N.O.P.), Stichting voor Plantenveredeling
3.5.5. Ketelhaven (Oost-Flevoland), Directie N.O.P.-werken, Landbouwkundige Afdeling
3.5.6 Lelystad (Oost-Flevoland), Stichting Nederlands Graan-Centrum
3.5.7 Knarhaven (Oost-Flevoland), Stichting Nederlands Graan-Centrum

3.6 Rivierkleigebied

3.6.1 Werkendam (Biesbos), Rijkslandbouwvoorlichtingsdienst
3.6.3 Wageningen, Instituut voor Plantenziektenkundig Onderzoek
3.6.5 Andelst, Rijkslandbouwvoorlichtingsdienst

3.7 Veenkoloniën + Noordelijke zandgronden

3.7.1 Borgercompagnie, Proefboerderij "Borgercompagnie"
3.7.4 Rolde, Proefboerderij De Kooijenburg

3.8 Zuidelijke zandgronden

3.8.1 Dongen, Rijkslandbouwvoorlichtingsdienst
3.8.2 Maarheeze, Proefboerderij De Craenendonck
3.8.4 Ottersum, Kweekbedrijf C.I.V.

3.9 Zuid-Limburg

3.9.1 Beesel, Proefboerderij Hoosterhof
3.9.2 Wijnandsrade, Centraal Proefveld Rijkslandbouwvoorl.dienst

4.1 BELGIË/BELGIQUE

Oost- en West-Vlaanderen

4.1.1 Oostkerke bij Diksmuide, Veredelingsstation van Heverlee
4.1.2 Lemberge, Rijksstation voor Plantenveredeling
4.1.3 Roeselare, Landbouwschool
4.1.5 Wulpen, Veredelingsstation van Heverlee

4.2 Antwerpen - Limburg

4.2.1 Poppel, Belgische Boerenbond, St. Isidorus-hoeve
4.2.2 Herentals, Technische Scholen H.Familie
4.2.3 Stabroek, Landbouwschool

4.3 Centraal België

4.3.1 Leuven-Heverlee, Veredelingsstation van Heverlee
4.3.2 Gembloux, Station de Recherches de l'Etat pour l'Amélioration des Plantes de Grande Culture

4.9 LUXEMBOUR (Grand Duché)

4.9.1 Ettelbrück, Ecole d'Agriculture

5 GREAT BRITAIN

5.1 Scotland

5.1.1 Edinburgh/Boghall, Substation N.I.A.B.
5.1.2 Auchincruive (Ayr), West of Scotland Agriculture College

5.2 N.W.England

5.2.1 Winmarleigh/Preston, Substation N.I.A.B.

5.3 N.E.England

5.3.1 Cockle Park near Newcastle, Substation N.I.A.B.
5.3.2 Headly Hall near Tadcaster, Substation N.I.A.B.

5.4 East Midlands

5.4.1 Cambridge, N.I.A.B.
5.4.2 Cambridge, Plant Breeding Institute
5.4.3 Sprowston, Substation N.I.A.B.
5.4.4 Sutton Bonington, Substation N.I.A.B.
5.4.5 Grimsby, E.W.Nickerson & Sons Ltd.

5.5. West Midlands

5.5.1 Harper Adams' College, Substation N.I.A.B.
5.5.2 Stourbridge (Worcs), Edward Webb & Sons Ltd.
5.5.3 Sunninghill (Berks), Imperial College Field Station

5.6 Wales

5.6.1 Trawscoed (Cardiganshire), Substation N.I.A.B.
5.6.2 Plas Gogerddan, Welsh Plant Breeding Station

5.7 S.W.England

5.7.1 Rosemaund (Hereford), Substation N.I.A.B.
5.7.2 Seale-Hayne, Substation N.I.A.B.

5.8 S.E.England

5.8.1 Wye (Kent), Substation N.I.A.B.
5.8.2 Sparsholt, Substation N.I.A.B.
5.8.3 Southampton, University of Southampton, Botany Department

5.9 Ulster

5.9.1 Loughgall, Co-Armagh, Plant Breeding Station of Northern Ireland

6 EIRE

6.1 Leinster

6.1.1 Backweston Departments Farm (Kildare), Department of Agriculture

6.2 Munster

6.2.1 Johnstown/Wexford, Johnstown Castle Agricultural College

6.3 Cork

6.3.1 Midleton, Cereal Station Ballinacurra

7 FRANCE

7.0 Nord de la France

7.0.1 Cappelle par Templeuve (Nord), Maison Florimond Desprez
7.0.2 Auchy-les-Orchies (Nord), Etabl. Cambier Frères

7.1 Ile de France

7.1.1 Estrées-St.-Denis (Oise), Etabl. M.Belloy
7.1.2 Versailles (S. et O.), Institut National de la Recherches Agronomique
7.1.3 Grignon (S. et O.), Ecole Nationale d'Agriculture
7.1.4 Montfort l'Amaury (S. et O.), P.Bormans, Station de Sélection Etabl. M.Belloy
7.1.5 Coulommiers (S. et M.), Etabl. Tourneur Frères)

7.2 Normandië/Bretagne

7.2.1 Le Neubourg (Eure), Ecole d'Agriculture
7.2.2 Rennes (Ille et Vilaine), Ecole Nationale d'Agriculture

7.3 Sologne/Poitou/Guyenne

7.3.1 Blois (Loir et Cher), Direction des Services Agricoles

7.4 Champagne/Bougondië

7.4.1 Chatillon s. Seine (Côte d'Or), Ecole d'Agriculture
7.4.2 Dijon (Côte d'Or), C.N.R.A.

7.5 Lorraine/Franche Comté

7.6 Massif Central

7.6.1 Clermont-Ferrand (Puy-de-Dôme), Centre de Recherches Agronomiques du Massif Central
7.6.2 Rodez (Aveyron), Société de Production et d'Approvisionnement du Plateau Central R.A.G.T.

7.7 Languedoc

7.7.1 Montpellier (Hérault), Ecole Nationale d'Agriculture
7.7.2 Valence s. Rhône (Drôme), Service scientifique des Etabl.Tézier

7.8 Alpes

7.9 Pyrénées, Toulousain, Bordelais

7.9.1 Ondes (Haute Garonne), Ecole Régionale d'Agriculture

8 SCHWEIZ/SUISSE

8.1 Jura

8.1.1 Cery près Lausanne (Vaud), Stations Fédérales d'Essais Agricoles

8.2 Bern (Kanton)

8.3 Zürich/Solothurn

8.3.1 Reckenholz, Eidg. Landw. Versuchsanstalt

8.4 St. Gallen

8.4.1 Haag-Gams, Eidg. Landw. Versuchsanstalt

8.5 Graubünden/Ticino

8.5.3 Realta (Graubünden), Eidg. Landw. Versuchsanstalt
8.5.4 Maran bei Arosa (Graubünden), Eidg. Landw. Versuchsanstalt

9.1 OESTERREICH

9.1.2 Reichersberg (Oberöstereich), Getreide und Futtersamenzuchtstation der Oberöstereichischen Landes-Saatbaugenossenschaft G.m.b.H.
9.1.5 Petzenkirchen (Niederösterreich), Bundesanstalt für Pflanzenschutz
9.1.6 Fuchsenbigl (Niederösterreich), Bundesanstalt für Pflanzenschutz
9.1.7 Drauhofen (Kärnten), Bundesanstalt für Pflanzenschutz
9.1.8 Sankt Donat (Kärnten), Bundesanstalt für Pflanzenschutz

9.2 YOUGOSLAVIA

9.2.5 Novi Sad

9.3 ITALIA

9.3.1 Bergamo, Stazione di Maiscoltura
9.3.2 Lonigo, Istituto di Genetica e Sperimentazione Agraria "Nazareno Strampelli"
9.3.3 Bologna, Istituto di Allevamento Vegetale per la Cerealicoltura
9.3.5 Firenze, Università degli Studi di Firenze
9.3.6 Firenze
9.3.7 Roma, Stazione di Patologia Vegetale
9.3.8 Foggia, Istituto Nazionale di Genetica per la Cerealicoltura "Nazareno Strampelli"

9.5 ESPANA

9.5.1 Zaragoza, Estación Experimental de Aula Dei
9.5.2 Madrid, Instituto Nacional de Investigaciones Agronomicas
Centro de Cerealicultura

9.7 PORTUGAL

9.7.3 Oeiras, Estaçao Agronómica Nacional
9.7.5 Elvas, Estaçao de Melhoramento de Plantas

9.9 ISRAEL

9.9.1 Hof Asdod, Hazera Seed Growing Company
9.9.2 Rehovot, Faculty of Agriculture, Hebrew University