

DISEASES AND PESTS OF RICE IN THE NETHERLANDS EAST INDIES IN 1925.

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Atjeh and Dependencies.

In Geumpang so much damage was caused by rats that the crop failed almost completely, and the importation of rice from Sigli and Tangse was necessary. The second plantation too, of fast-growing varieties, was severely threatened. Only by organised driving and poisoning on a large scale was it possible to protect the major portion of the crop. The total damage, estimated at about 56 hectares may perhaps not be great, but, for an outlying and thinly populated area such as Geumpang is, the damage is very considerable.

Besides, in the whole of Pidie and the North Coast much inconvenience was caused by rats and wild boar. Against both these pests the cultivators used phosphorus paste which is supplied to them through the Agricultural Intelligence Service.

In December 'hama-wereng' (*Cicadillidae*) infestation was identified in the young plantations on Sumatra's East Coast and also in Indi and Perlak. Eight days later this infestation assumed the proportions of a severe pest that spread over the whole East coast and a portion of the North coast.

On the East coast of Atjeh, as a result of severe floods occurring in the sub-divisions of Tamiang, Langea and Indi, many plantations were destroyed.

Sumatra's East Coast.

In the lowland marsh fields of Sisir Goentoeng and Pangkalan Brandan *Cicadillidae* appeared, but not so heavily as in Atjeh.

The very wet autumn caused flood damage in the Tebing-Tinggi area.

Tapanoeli.

Root rot was generally prevalent, but nowhere was the damage of importance.

'Hama-poetih' (fam. *Pyralidae*) too was widespread. In most sub-divisions the infection was not serious; the Plateau of Toba sub-division was,

however, the exception. In the neighbourhood of Si-Borong-Borong the damage was rather great. Many fields had to be resown. Leaving the fields dry was apparently not a complete remedy.

At Pagar Goenoeng (Sub-division Mandailing) much damage was caused by rats. Some cultivators were constrained to sow twice because the first lot of seedlings was completely destroyed by rats. Not only the seedlings, but the field paddy too was attacked. In the environs of Ambarita too (sub-division Samosir) rats attacked the crop.

At Tomok (sub-division Samosir) the ripening paddy was very badly affected by storms. This reduced the crops in that region to half the normal one.

Sumatra's West Coast.

The crop has been 20 per cent. smaller than in the previous year. This was due less to diseases and pests than to unfavourable weather conditions which delayed sowing and harvesting by one-and-half months. Damage as usual, on a small scale, was caused by rats, birds, etc., but this did not entail much loss.

Palembang Residency.

A fairly large extent of damage was caused by rats in the Martopoera and Moeara.

Bantam Residency.

Here the chief disease of rice every year is root rot. It existed over 4,102 hectares (in 1924 over 5,002 hectares). For the rest, the crop in the whole of Bantam was good. In comparison with other years, very few diseases and pests occurred. As usual root rot spread over the whole of Bantam, the chief centres of infection being in the North Bantam Division. The sub-districts of Koppo, Tjiroeas, Tjarinang and Parigi suffered most.

Walangsangit, paddy bug, *Leptocorisa acuta*, Thunb., attacks were very slight and, on the whole, affected only 137 hectares as against 15,914 hectares in 1924.

Paddy borers were reported only on the sub-district Tjiroeas of the North Bantam Division on 121 hectares. The paddy borer is a pest that only exceptionally causes serious damage in Bantam.

On the whole 226 hectares failed owing to drought; and for Bantam this extent is small. In North Bantam, in sub-district Baras only six acres failed. All the other failures occurred in South Bantam.

Floods also caused little damage. On the whole 119 hectares were destroyed.

Damage done by rats was noticed only in two sub-districts, namely, Tjiroeas and Batoebondar.

Hama Wereng (fam. *Pyralidae*) was noticed in Anjer sub-district over a small area.

Batavia Residency.

The crops were not seriously affected by any diseases and pests. The plantation succeeded therefore better than in the past few years.

Quite 9,200 hectares and 8,400 hectares of lowland paddy were destroyed by the Walangsankit, paddy fly, *Leptocorisa acuta* and the White Rice Borer respectively in 1924. This year the losses were 2,373 hectares and 417

hectares. Walangsankit appeared exclusively in Krawang Division. The White Rice Borer was restricted to Krawang Division and was also reported from Djatisari sub-district (224 hectares) and also from Tjilamaja, etc.

This year quite considerable damage was caused by floods in Krawang Division.

Root rot occurred in Djatisari, Telangasari and Krawang Divisions.

An extent of 1,390 hectares of lowland paddy failed owing to drought. The losses were spread over sub-districts Pamanoean, Batoedjaja, Segalaherang and Tjiledoek districts.

But little damage was done by rats. They destroyed 32 hectares of lowland paddy in Poerwakarta sub-district; further, some other damage was noticed in Kalidjati, Soebang and Tjiselak sub-districts. Only Balaradja sub-district reported damage caused by borers.

West, Central and East Priangan Residencies.

In Bandoeng Division borers did little damage. The Brown Rice Bug, *Podis vermiculata* was found in Tasikalaja. In no parts did Hama-poetih (fam. *Pyrolidae*) cause serious loss. Root rot was unimportant and caused no failures. Rats were a severe pest. In some areas they caused total crop failures. They did damage in Tjijtalengka, Tjiparaj, Adjoengboreng, and Bandoeng Districts; in sub-district Badjonglowa; in Bandjara, Tjimahi, and Tjilin Districts (Bandoeng Division); in Tandjoengsari district of Soemadong Division; in Tasitemalaja Division; in Kawali, Pandjaloe and Tjiamais Districts.

Caterpillars were present in Soemedang and Tasikmalaya Divisions but did not cause serious damage. In Bandoeng Division, Oedjoengbroeng District, *Leuctania unipunctata* did damage. Bandjara also reported damage caused by caterpillar pests.

Birds did considerable destruction in Bandoeng District.

Walangsankit, a paddy bug, *Leptocoris acuta*, Thunb., caused fairly heavy damage in Bandoeng Division and some damage in Soemedang, Tasikmalaya and Garoet Districts. In the districts of Tjikadjang and Patjet of Tjiandjoer Division the pest was prevalent.

Floods caused less damage than in previous years.

This being a particularly dry year the lack of water was felt more keenly than in other years, especially in Bandoeng Division (Tjijtalengka, Tjiparaj, Oedjoengbroeng, Bandoeng, Bandjara and Tjimahi Districts). There was some damage done in Garoet Division too.

Highland Paddy.

Root rot, canker worms and the Paddy Bug were less a menace to the crops than is normally the case in Soemedang Division.

Cheribon and Indramajoe Residencies.

Though Borer pests occurred, chiefly in Indramajoe residency, not much harm was done by them.

Damage, though not great, was done by rats.

Caterpillars appeared chiefly on the nursery beds, but the damage caused was small.

Hama wereng (*Cicadellidae*) were met with only here and there in the low-lying plantations of Cheribon residency.

Walansangit, paddy bug, appeared generally in the highlands of Cheribon and Indramajoe Residencies. The damage caused was, however, low.

The young plantations were found to be attacked by land crabs. The damage caused was small.

Root rot was found to occur chiefly on the low-lying lands of Indramajoe Residency. The disease was also found in patches on the fields that were planted during the East monsoon of 1924.

A leaf disease caused by the fungus *Scolecotrichum* damaged the dry nursery beds.

In Indramajoe Residency the low-lying fields were injured here and there by water.

Damage owing to drought occurred especially in the East monsoon plantations.

Kedoe Residency.

In this region the produce of the second plantation of paddy was only three-fourths of what might be regarded as the crop of a successful plantation.

In the highland areas the damage caused by rats was greater than usual.

Banjoemas Residency.

The estimated yield of the second plantation of paddy amounted only to half of what is produced during a year with a normal distribution of rainfall. The West monsoon plantation of 1925-26, in every place where planting has already been done, suffers from want of water.

Pekalongon Residency.

The chief diseases and pests of paddy that are met with here are root rot and borers. Certain areas are attacked by them every year. The reports show that a sharp line of demarcation has not been drawn between the two infections. Besides, the pests are so generally wide-spread that even the reports regarding areas having infested crops lack accuracy.

The total areas reported as having both infections is 2,171 hectares which lie chiefly in Soeradadi District of Tegal Division and Tanjoeng District of Brebes Division. From this we are in a position to ascertain that about 1,330 hectares were infected by root rot.

The appearance of rats was reported from all parts of the Residency. The pest was more severe than in most other years and this was clearly indicated especially in the areas where paddy was planted during the East monsoon. This was the case, as in other places, in Randoedongkal and Banjoemoedal Districts of Pemalang Division where generally no severe damage is done by rats; but in the last year, owing to great failures in the harvest, the rats immigrated here, to the lower lying lands which had not been affected by drought.

Leaf caterpillar attacked nursery beds more severely than in former years, though the damage caused was, on the whole, not important as the seedlings again recuperated as they grew.

Lack of water caused considerable damage. In all 4,970 hectares failed completely. The main losses occurred in Wiradesa, Kadjen, Tjomal, Watoekoempoel, Bajoemoedal, Badjarhardjo and Pangkah Districts.

Less than 100 bouws were destroyed by floods.

As a result of the East monsoon breaking early the coastal lowland fields suffered much from the effect of salt water. A total of 1,470 hectares failed. Most of the affected area lay in the Tegal and Brebes Divisions,

Djakakarta Residency.

As in 1924 leaf-eating caterpillars appeared in Djokjo and Koelon Progo Divisions.

Borers were present this year only in Pengaseh (Koelon Progo Division).

Canker worms did damage in Goenoeng Kidoel Division.

In Galoer District (Koelon-Progo Division) hama-poetih (*Pyralidae*) attacked the paddy.

In Semanoe District (Goenoeng Kidoel Division) there was a considerable rat pest and 277 hectares of paddy were destroyed. Koelon-Progo and Djokja Divisions too suffered from this pest, but to a smaller extent.

Soerakarta Residency.

Lowland Paddy.

This year the paddy bug was not widespread.

Ground caterpillars occurred mostly in the paddy nursery beds of the East monsoon sowing. The spread of the pest over large areas was noticed only in the Sragen District on heavy clay soil. It was possible to save the infected nursery beds by submerging them well for as long as possible so as to make the caterpillars float on the surface of the water. They could then be collected and killed.

Borers did some damage. The identified areas of infection lay in Klaten, Kartasoera and Delangzoe Districts especially.

More root rot was caused in 1925 than in 1924 owing to the unfavourable distribution of the rainfall. This was especially the case in lowland fields depending on rains for their water supply. This year 649 hectares were infected, as against 42 hectares in 1924 and 353 in 1923.

The rat pest prevailed over 81 hectares, mostly in the Wonogir area.

Hama poetih (*Pyralidae*) did some damage; but in most cases the infected plantations recovered after a couple of weeks.

Owing to lack of water 291 hectares were badly affected. The Waterschap Pepi region particularly was largely affected.

Highland Paddy.

Rats attacked the fields over an area of 87 hectares.

There was a locust pest in Giritontro sub-division, in the neighbourhood of the teak forests. In the proximity of the North—Soerakarta and South Semarang teak forests too there was damage caused by rats.

Semarang Residency.

On the whole 2,854 hectares were reported as infested by the rice borer known as "Soendep;" and of this area 1,480 hectares were in Demak, and 1,204 in Pati. The other infested fields were in Koedoes and Grobogan Divisions.

The extent reported as infested by the "beloek" rice borer was 505 hectares of which 191 were in Demah, 200 in Koedoes and 95 in Pati, besides 17 hectares in Grobogan.

873 hectares were reported as "borer" infested. Of this area 871 hectares lay in Demak Division. Especially the fields that were harvested late were much infested. About 40 to 60 per cent. of the infested fields failed.

The root rot infested area was relatively large and was spread over several divisions: Semarang 13 hectares, Salatiga 268 hectares, Demak 1,106 hectares, Kendal 85 hectares, Grobogan 483 hectares, Koedoes 780 hectares and Pati 684 hectares. On the whole the infestation was not so severe as to result in a general crop failure.

Rats appear every year as a rule, in large or small numbers in Salatiga Division.

Linting is a diseased condition wherein the leaf dries, rolls up and curls. It may be due either to the attack of a caterpillar or to want of water.

In Demak the fields suffered from drought in the month of April.

Japara reported an attack of Walangangit, paddy bug. This pest was not reported by any other division. It occurred sporadically in Semarang Residency.

Floods affected an area of 6,435 hectares. The major portion of this area was in North Demak. At first floods occurred in Koedoes and Pati. Not much damage was caused by these floods as the water subsided fast. It was only in North Demak that a portion had to be replanted. This is an annual occurrence here.

Several caterpillar pests were reported, in every case, however, the area affected was not extensive.

Canker worm damage in a paddy plantation in Kendal was reported as occurring over an area of 6 hectares.

In North Demak paddy was subject to damage by sea water.

In Pati 35 hectares failed owing to drought. In several divisions comparatively small portions only of the plantations failed completely, but everywhere there was a decrease in the crop.

Rembang Residency.

Bodjanegara and Blora Divisions reported that much damage had been done by borers. Especially in Blora Division a crop failure due to borer attack occurred over a large area.

The greatest failures due to root rot (about 2,100 hectares) were reported from Toeban District. In Bodjanegara Division 3,300 hectares were given up as lost.

Serious failures of harvest due to drought occurred in the East monsoon planting of Toeban Division.

Madioen Residency.

Root rot caused great injury in the plantations, although less than in the previous year.

Many East monsoon plantings failed in Madioen and Ngawi Districts owing to lack of water.

Borer infestation was reported from Ngawi Division.

A very small area of the Sub-District Slaboeag (Ponorogo) was partly destroyed by rats.

Kediri Residency.

No serious occurrences of root rot.

Sporadic appearances of borers prevailed in the whole residency.

Caterpillar pests too were present to a small extent.

Only the high land paddy in Toeloengagoeng Division, as in the previous years too, was attacked by eelworms (*Leucopholis Torida*). The area attacked was 70 hectares.

Walangsangit, paddy bug, was not a very serious pest this year.

About 500 hectares in Biltar had to endure water scarcity.

Flooding took place in the localities that every year are subject to floods. In Kediri Division about 300 hectares were destroyed.

Soerabaja Residency.

In Prambon and Toelangan Sub-Districts damage by borers was pretty much.

Only localised damage was done by birds among the early ripening varieties.

Root rot occurred in the Sidaardja-delta, but only the low-lying fields were severely affected. In Madjakerta Division, the Sub-districts Patjet, Trawas, Poegeran, Djabon, Djetis and Djatiredjo were continually attacked by root rot.

Pasoeroen Residency.

Over an area of 1894 hectares root rot is reported to have occurred (100 hectares in 1924 and 21 hectares in 1923). The infection was most widespread in Krasaan Division (1,096 hectares). In this division Paiton, Matikan, Djaboeng, and Krakasaan Districts suffered most. This is most probably connected with the delay in planting, caused by the unfavourable nature of the rainfall, and with the extensive form of cultivation which is adopted in these areas. In Loemadjang Division, the district of the same name suffered from the disease (332 hectares).

Walangsangit, paddy bug, was reported only in Krakasaan Sub-district. Damage was caused by rats in Malang Division.

Besoeki Residency.

In Rogodjampi district of Banjoewangi division, Walangsangit, paddy bug, injured the crops in the early months of the year.

In May damage was caused by rats in Banjoewangi Division especially in Rogodjampi and Genteng Districts. The pest spread gradually and reached its most severe stage in October. An extent of 5,600 hectares was almost completely destroyed.

This year too the damage caused by borers was not very considerable.

Chiefly as a result of late planting and the shortness of the West monsoon rains, much root rot was prevalent in Sitoebondo, Panaroekan, and Besoeki Districts. Here about 1,300 hectares were unsuccessful. A part of the loss must be attributed to the incidence of an untimely drought.

Madoera Residency.

In some areas borers appeared in great numbers, and in Tordjoen, among other places, much damage was done.

In young unirrigated plantations much injury was caused by canlar-worms. In some cases fields had to be planted afresh.

Some fields in Soemenep in the irrigated area were injured by root rot. Other parts too were affected by the disease.

Birds did much damage. In Bangkalan the crop of the East Monsoon planting was harvested when it was not completely ripe as birds were causing great damage to it.

Government of Celebs and Dependencies.

Much root rot occurs in Toradjalanden as the cultivators in those areas do not allow the fields to stand dry for a time whenever it is possible.

In the Sub-division Djenepono the rice harvest failed because at the beginning of the East Monsoon many of the young plantations were washed off by heavy showers, whilst, at the end of the rainy season, the fields that were planted anew were meanwhile damaged by drought.

Menado Residency.

Localised damage was caused by root rot and borers. Except in Minahassa, damage was caused by rats too.