

Trends in research reported in the Netherlands Journal of Plant Pathology, 1895–1973

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Abstract

The 'Tijdschrift over Planteziekten', 1895–1963 (Netherlands Journal of Plant Pathology, 1963 on) was analysed to assess the development of plant pathology in the Netherlands. The approach to phytopathological problems is becoming more and more specialized and field work has given way to experimentation in the laboratory.

Introduction

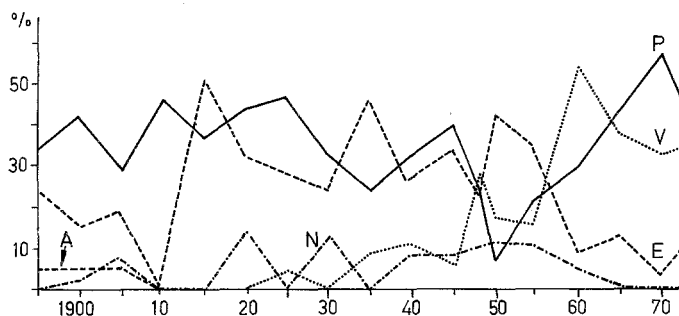
Horsfall (1972) surveyed trends in plant pathology and drew attention to the tendency of phytopathologists to work increasingly in the laboratory and less in the field. He warned that plant pathology could lose touch with agricultural problems because of pressure to publish and to obtain higher degrees. He illustrated the trend with an analysis of the journal *Phytopathology*. From information given about materials and methods, he calculated the proportion of articles that deal with field research in each volume. Except after the two World Wars, when more food was needed, the proportion fell.

The purpose of this study was to find whether a similar trend exists in Dutch plant pathology.

The Netherlands Journal of Plant Pathology (up to 1963 named *Tijdschrift over Planteziekten*) is published by the Netherlands Society of Plant Pathology. The journal exclusively publishes papers written by members of the society.

For the first volume (1895) and every fifth volume thereafter all articles including short communications (1169 papers in total) were examined and classified according to various criteria. Criteria were a.o. the subject (fungi and bacteria, viruses, insects, nematodes), the approach (general pathology or a speciality such as ecology, physiology, or anatomy), the nature of the investigation (observation only or experimentation), and the working conditions (field, greenhouse, or laboratory). After computer processing of collected data the proportion of the different categories was put in diagrams. For every criterium, there was a class 'others', so that in the following report the sum of the frequencies per class (in per cent) is not necessarily one hundred.

Fig. 1. Distribution of articles in every fifth volume of The Netherlands Journal of Plant Pathology according to subjects.



A = air pollution/*luchtverontreiniging*; E = entomology/*entomologie*; N = nematology/*nematologie*; P = phytopathology/*fytopathologie*; V = virology/*virologie*.

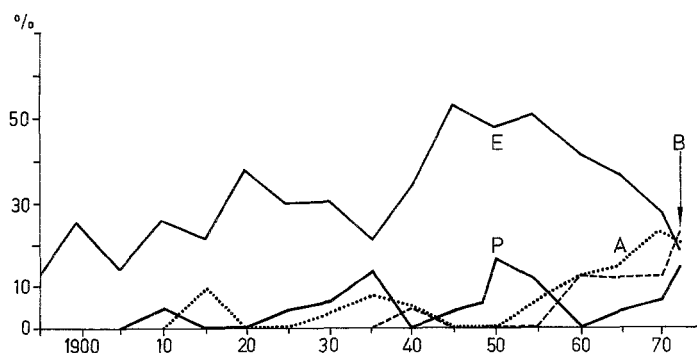
Fig. 1. Procentuele verdeling van artikelen in iedere vijfde jaargang van het Netherlands Journal of Plant Pathology gerangschikt naar onderwerpen.

Results

As shown in Fig. 1, publications on fungi (and bacteria; indicated as 'phytopathology') and viruses now predominate in the journal, since results of research on insects, mites and nematodes, are mostly published elsewhere (*Tijdschrift voor Entomologie*, *Entomologische Berichten*, *Entomologia experimentalis et applicata*, *Nematologica*). The turning point is between 1955 and 1960. From ca 1925 plant virology constitutes a distinct discipline contributing increasingly to the journal.

As illustrated in Fig. 2, plant pathology has become more specialized. The class 'general approach' (all aspects of a disease or pest studied together) has fallen from

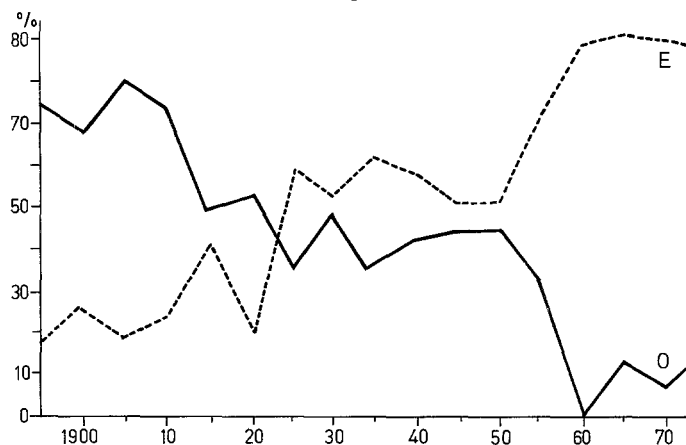
Fig. 2. Distribution of articles in every fifth volume of the Netherlands Journal of Plant Pathology according to approach.



A = anatomy/*anatomie*; B = biochemistry/*biochemie*; E = ecology/*ecologie*; P = physiology/*fysiologie*.

Fig. 2. Procentuele verdeling van artikelen in iedere vijfde jaargang van het Netherlands Journal of Plant Pathology gerangschikt naar benaderingswijze.

Fig. 3. Distribution of articles in every fifth volume of the Netherlands Journal of Plant Pathology over the classes observation and experimentation.



E = experimentation/experimentatie; O = observation/observatie.

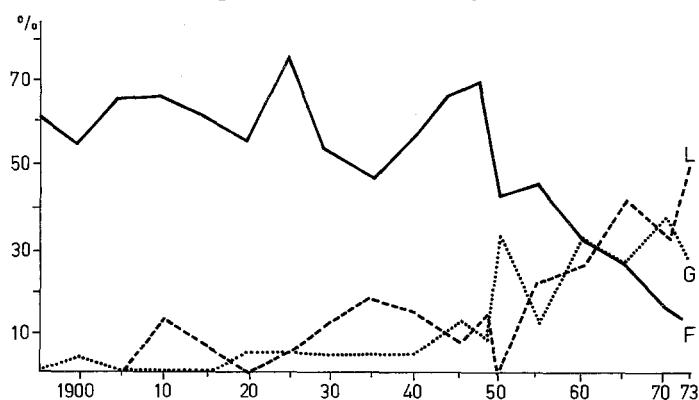
Fig. 3. Procentuele verdeling van artikelen in iedere vijfde jaargang van het Netherlands Journal of Plant Pathology over de klassen observatie en experimentatie.

prominence. The class 'ecology' increased to a maximum in the fifties, and was at equals with 'physiology' and 'anatomy' around 1970.

There has been a constantly increasing interest in experimentation, papers with purely observational records decreased accordingly (Fig. 3).

As Fig. 4 shows, the emphasis in plant pathology has shifted to experiments in the laboratory. Half the articles published in 1973 describe laboratory research. The typical peaks in 1925 and 1950 may be attributable to the two World Wars ending 1918 and 1945, respectively.

Fig. 4. Distribution of articles in every fifth volume of the Netherlands Journal of Plant Pathology over the classes field, greenhouse, and laboratory.



F = field/veld; G = greenhouse/kas; L = laboratory/laboratorium.

Fig. 4. Procentuele verdeling van artikelen in iedere vijfde jaargang van het Netherlands Journal of Plant Pathology over de klassen veld kas en laboratorium.

Fig. 5. Field oriented research papers in the Netherlands (Netherlands Journal of Plant Pathology, broken line) and in the USA (Phytopathology; after Horsfall, 1972; drawn line). The World Wars I and II are indicated.

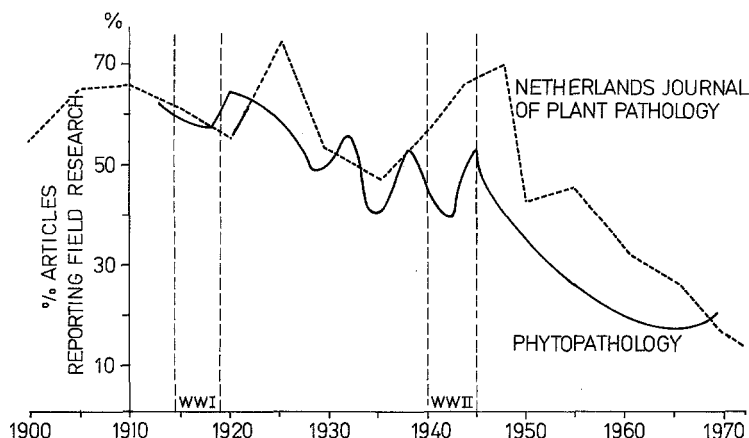


Fig. 5. *Op veldwerk gerichte onderzoeksverslagen in Nederland (Netherlands Journal of Plant Pathology, onderbroken lijn) en in de USA (Phytopathology; volgens Horsfall, 1972; doorgaande lijn). De beide wereldoorlogen zijn aangeduid.*

Further analysis of the journal revealed an increasing interest in the pathogen as such, less attention being paid to the host and to the disease (pathogen-host combination).

Discussion

Classifications as reported here are ambiguous and poorly reproducible. All classifications must be made by one man (here the senior author); much depends on the constancy of his judgement. Numbers and percentages in particular years have little meaning, only long-term trends can be significant. The large variation in data from nearby years, that has been found, is at least partly due to the relatively small number of papers published per annum (ca 70 on average).

Small variations in Horsfall's curve (Fig. 5) are more trustworthy than larger variations in the Dutch curves because of the high number of papers per annum in Phytopathology. In this respect the similarity of the general trends in field-oriented research from the USA and the Netherlands, established by different judges applying comparable methods, is comforting.

The changes in the journal recorded here do not give a complete picture of the development of plant pathology in the Netherlands, because other journals have been established more or less recently. From 1970 onwards, papers of immediate practical importance to the Dutch readership are published in Dutch in the journal 'Gewasbescherming' (= Crop Protection). Results from field work are often recorded in annual reports of agricultural research stations. Results from specialized research are frequently published in specialized international journals as e.g. Physiological Plant Pathology. The editors and their opinion of the purpose of the journal affect the selection of papers and therewith the kind of research reported. This dis-

cussion indicates the weakness of the method used. The Netherlands Journal of Plant Pathology can be characterized more or less; to analyze the plant pathology of the Netherlands all phytopathological papers *sensu lato* published by Dutch workers should be taken into consideration. Nevertheless, the trend of change noted in the content matter of papers contributed to the Netherlands Journal of Plant Pathology is characteristic.

The trend is a withdrawal from field research and from generalized or 'integrated' approaches to plant pests and diseases. This is not the place to discuss the causes of the trend signalized here. It suffices to state that the trend is disquieting. When everybody including plant pathologists are really interested in food production as during the two World Wars, the frequency of field oriented papers and general approach publications increases in the Netherlands as in the USA, with a characteristic delay of about 5 years (Fig. 5).

Samenvatting

Tendensen in onderzoek gepubliceerd in het Netherlands Journal of Plant Pathology, 1895–1973

De publikaties in het Tijdschrift over Planteziekten (Netherlands Journal of Plant Pathology) over de afgelopen tachtig jaar werden vijfjaarlijks geanalyseerd. De geconstateerde tendensen zijn een verschuiving van onderzoek te velde naar onderzoek in het laboratorium, een toenemende specialisatie binnen het vakgebied en een overgang van observatie naar experimentatie. De resultaten van dit literatuuronderzoek geven duidelijke tendensen aan, maar bieden geen volledig beeld van de Nederlandse planteziektenkunde.

Acknowledgments

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Reference

Horsfall, J. G., 1972. Relevance, are we smart outside? *Phytopathological News* 4: 6–9.

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