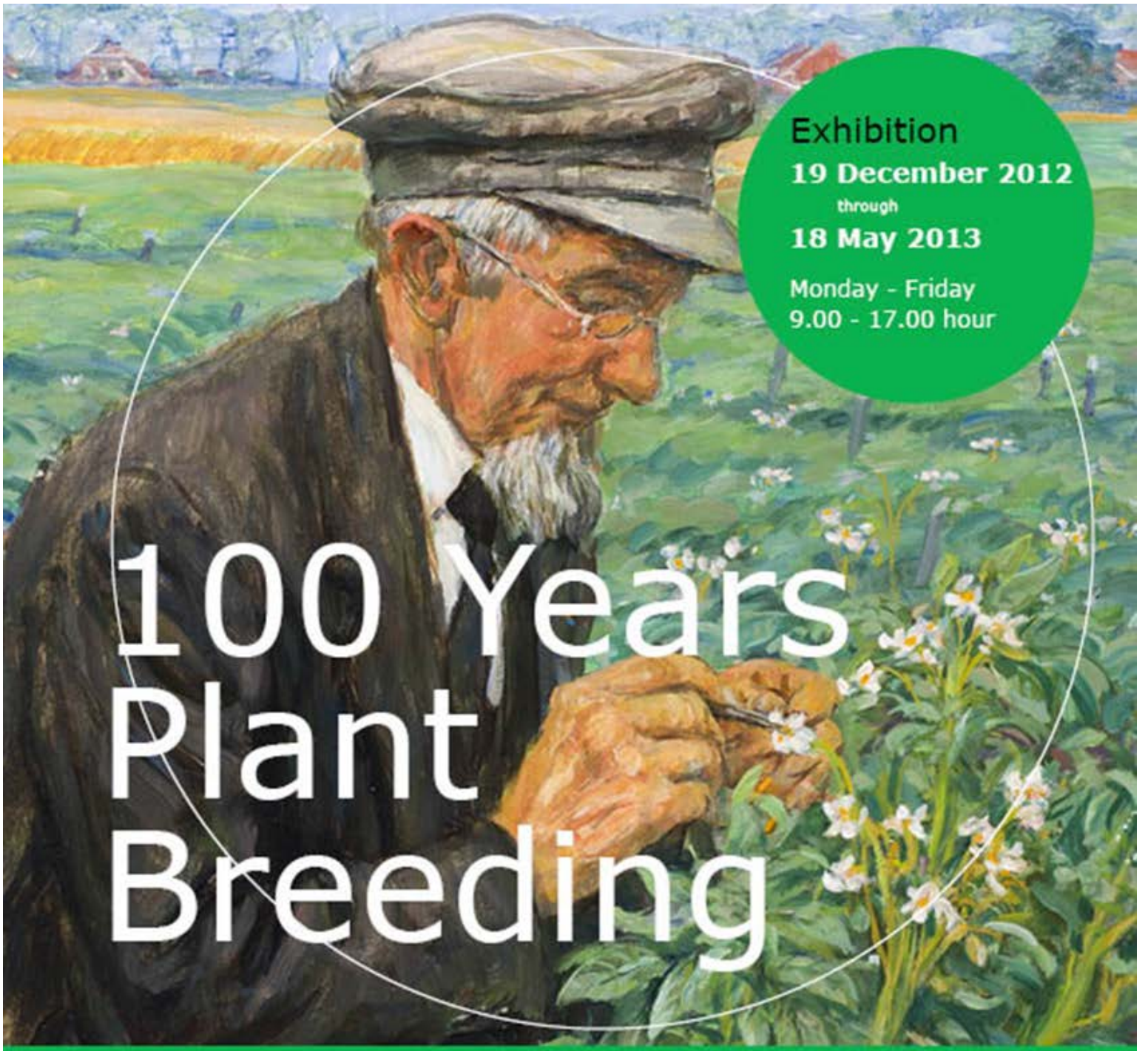


Exhibition
19 December 2012
through
18 May 2013
Monday - Friday
9.00 - 17.00 hour

100 Years Plant Breeding

Wageningen UR Library & Plant Breeding

Forum (building 102)
Droevendaalsesteeg 2
6708 PB Wageningen

www.wageningenUR.nl/library/special-collections

WAGENINGEN UR
For quality of life

Acknowledgements

This exhibition is curated by Liesbeth Missel (curator Library Wageningen UR), Wouter Gerritsma (information specialist Plant Sciences, Library Wageningen UR) and Rients Niks and Herman van Eck (both assistant professor at Wageningen UR Plant Breeding). Information on Wageningen UR Plant Breeding: http://www.plantbreeding.wur.nl.

Production: team Special Collections, Library Wageningen UR

More information and guided tours:
Plant Breeding / rients.niks@wur.nl / 0317-482508
Special Collections / speccoll.library@wur.nl / 0317-482701

100 years Plant Breeding

Exhibition Wageningen UR Library & Plant Breeding

19 December 2012 t/m 18 May 2013, Monday–Friday, 9 am–5 pm.

To celebrate the 100th anniversary of plant breeding in Wageningen in 2012, there were several activities. As the closing event, the Wageningen UR Library and Wageningen UR Plant Breeding are organizing the exhibition '100 Years of Plant Breeding' in the Forum Library. Using the breeding history of the potato, the historical development of this field is traced in the exhibition.

The exhibition closes on the Fascination of Plants Day on Saturday, 18 May 2013.

Wageningen UR Library
Reading room Speciale Collecties
Forum (building 102)
Droevendaalsesteeg 2
6708 PB Wageningen

History of Plant Breeding

From the start of agriculture approximately 10,000 years ago, humans have gradually improved the quality and productivity of crops through intentional and unintentional selection. At the end of the 17th century, it became clear that plants reproduce through cross-pollination, during which pollen takes the role of the male seed. In 1865, the Austrian monk Gregor Mendel discovered that traits are inherited in predictable patterns. Initially, the importance of Mendel's discovery was not recognized, but around 1900, different scientists, including Hugo de Vries, saw the value of Mendel's discovery and further developed his Laws of Inheritance into the independent field of genetics.
Since the discovery of genetics, scientific and applied plant breeding have boomed. Since 1912, Wageningen has played an important role in this development. In 1923, the Institute for Breeding of Agricultural Crops was founded. Both different members within the university as well as different research institutes (DLO) have enormously contributed to developing this internationally important industry and knowledge sector. Since 2005, Plant Breeding has been a collaboration between Wageningen University's Laboratory of Plant Breeding/Plant Breeding Institute and Plant Research International's business unit Biodiversity and Breeding.

Early cultivation of plants (ca. 1450-ca.1850)

John Gerard (1545-1612), a British gardener and collector of rare plants, received roots of the potato. He was able to successfully grow it in his own garden. He wrote about it in this book which was partly a translating of the Dutch Dodoens. Although potatoes were called "potatoes of the Virginia" by early English botanists, they were in fact from South America.

Gerard, J.; The Herball or general historie of plantes
London: John Norton, 1597. - 1464 p.
FORUM - SPEC.COLL. - R334C13; http://edepot.wur.nl/67631

Carolus Clusius (1526-1609), a Belgian botanist who became a professor and curator of the botanical garden in Leiden in 1593, received two bulbs (tulips) and some seeds of the potato plant in 1588 from Philippe de Sivry, in the Southern Netherlands. A year earlier De Sivry received this new plant under the name Taratoufli. Clusius made the first scientific description of the potato in this book in 1601 under the name Arachidna; in the inventory of 1594 it is called Papas Americanorum. It was described for medical purpose, not as food.

Clusius, C.; Pona, J.; Rariorum plantarum historia
Antverpiae [Antwerpen]: Ioannem Moretum, 1601. - 2 publ. in 1 bd.
FORUM - SPEC.COLL. - R334B06; http://edepot.wur.nl/59766

German botanist and physician Rudolf Jakob Camerarius or Camerer (1665–1721), director of the botanical gardens at Tübingen, is chiefly known for his investigations on the reproductive organs of plants. While other botanists had observed that plants seemed to have sex in some form, and guessed that pollen was the male fertilizing agent, it was Camerarius who did experimental work. His results were reported in the form of a letter (the epistola), and attracted immediate attention.

Camerarius, R.J.; Moebius, M.; Ueber das Geschlecht der Pflanzen = (De sexu plantarum epistola) 1694
Leipzig: Engelmann, 1899. - 78 p.
FORUM - STACKS - NN03171,105

Camerarius, R.J.; Thesium botanicarum decas de plantis vernis, solenni ventilationi exposita pro loco
Tubingae [=Tuebingen]: Martini Rommeii, 1688. - 22 p.
FORUM - SPEC.COLL. - R338C05

Joseph Gottlieb Kölreuter (1733–1806), also spelled *Koelreuter* or *Kohlreuter*, studied medicine at the University of Tübingen under physician and botanist Johann Georg Gmelin and received his PhD in 1755. Kölreuter described many plant species and studied pollen. He performed experiments, particularly with the tobacco plant, to produce fertile hybrids. One of his findings was that hybrids may be stronger than their parents(heterosis). Kölreuter also recognized the importance of insects

and wind as agents of pollen transfer in plant fertilization. The genus *Koelreuteria* has been named in his honour.

Pfeffer, W.; D. Joseph Gottlieb Kölreuter's Vorlaeufige Nachricht von einigen das Geschlecht der Pflanzen betreffenden Versuchen und Beobachtungen, nebst Fortsetzungen 1, 2 und 3 (1761-1766)
Leipzig: Engelmann, 1893. - 266 p.
FORUM - STACKS - NN03171,41

French physician Antoine Parmentier (1737-1813) studied the potato intensely and showed its enormous nutritional value. He won a contest sponsored by the Academy of Besancon to find a food "capable of reducing the calamities of famine" with this study. In 1785 Parmentier persuades King Louis XVI to encourage the cultivation of potatoes. Many French potato dishes today now bear his name.

Parmentier, A.A.; Examen chymique des pommes de terre : dans lequel on traite des parties constituantes du bled
Paris: Didot, le jeune, 1773. - 248 p.
FORUM - SPEC.COLL. - R342G21

Thomas Andrew Knight (1759–1838) used 4,000 ha of his land to conduct breeding of fruits, cabbages and peas. In 1797 he published a *Treatise on the Culture of the Apple and Pear,* which passed through several editions. Knight performed basic physiological experiments on plants at a time when that was rare. He deliberately crossed parental plants with each other to get better varieties. It is not widely known that he studied variation in peas and found many of the same results as Gregor Mendel, but he did not make the same imaginative leap about how these changes took place.

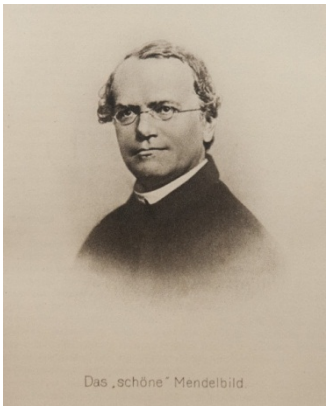
Knight, T.A.; Pomona Herefordiensis containing coloured engravings of the old cider and perry fruits of Herefordshire
London: [printed for the Agricultural Society of Herefordshire], 1811. – 30 pl.
FORUM - SPEC.COLL. - R334C12

Knight, T.A.; A selection from the physiological and horticultural papers, published in the transactions of the Royal and Horticultural Societies
London: Longman, Orme, Brown, Green, and Longmans, 1841. - XII, 379 p : 1 portr., 7 pl.
FORUM - SPEC.COLL. - RQE0401 http://edepot.wur.nl/159683

Alphonse Pyrame de Candolle (28 October 1806 – 4 April 1893) was a member of a well-known Swiss family of botanists. He succeeded his father Auguste P. de Candolle at the University of Geneva. A number of botanical works were published by him, including continuations of the *Prodromus* in collaboration with his son, Anne Casimir Pyrame de Candolle. The *Produmus Systematis Naturalis Regni Vegetabilis* is a 17 volume treatise on botany, intended as a summary of all known seed plants. In the *Origine* he explains that cultivated plants have wild ancestors from specific regions, as the potato being from the Andes.

Candolle, A.P. de; Origine des plantes cultivees
Paris: Germer Bailliere et Cie., 1883. - 377 p.
FORUM - SPEC.COLL. - Q0003 http://edepot.wur.nl/185145

Mendel and the discovery of the principles of heredity



Gregor Mendel (1822-1884) was a an Austrian monk who gained posthumous fame as the founder of the new science of genetics. Mendel demonstrated in an local paper in 1865 that the inheritance of certain characteristics in pea plants follows particular patterns, now referred to as the laws of Mendelian inheritance. His study showed that one in four pea plants had purebred recessive alleles, two out of four were hybrid and one out of four were purebred dominant. Although the significance of Mendel's work was not recognized until the turn of the 20th century, the rediscovery of these laws formed the foundation of genetics.

Iltis, H.; Gregor Johann Mendel : Leben, Werk und Wirkung
Berlin: Springer, 1924. - VII, 426 p.
FORUM - SPEC.COLL. - QE0456

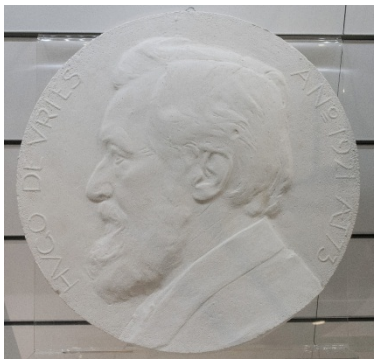
Mendel, G.; Tschermak, E.; Versuche über Pflanzenhybriden : zwei Abhandlungen (1865 und 1869)
Leipzig: Engelmann, 1901. - 62 p.
FORUM - SPEC.COLL. - Q471

G. J. Mendel, 1822-1922 : herdenkingsnummer van Genetica, Nederlandsch tijdschrift voor erfelijkheids- en afstammingsleer
's-Gravenhage: Nijhoff, 1922. - 198 p.
FORUM - STACKS - 278B28

Festschrift zum Andenken an Gregor Mendel
Brünn: [Verlag des Naturforschendes Vereines, druck W. Burkhart], 1911. - VIII, 363 p.
FORUM - SPEC.COLL. - LL0037

Correns, C.; Gregor Mendels Briefe an Carl Naegeli, 1866 - 1873 : ein Nachtrag zu den Veröffentlichten bastardierungsversuchen Mendels
Leipzig: Teubner, 1905. - [52] p.
FORUM - SPEC.COLL. - QE0468

Dutch botanist Hugo M. de Vries (1848-1935) was one of the first geneticists. He is known especially for suggesting the concept of genes, rediscovering the laws of heredity in the 1890s while unaware of Gregor Mendel's work, for introducing the term "mutation" and for developing a mutation theory of evolution.



Veer, P.H.W.A.M. de; Leven en werk van Hugo de Vries
Groningen: [Wolters-Noordhoff], 1969. - 252 p.
FORUM - STACKS - NN00178,1969,20

Relief profile Hugo de Vries [object in plaster]

Selection of publications by Hugo de Vries, 1899-1917

Vries, H. de; Plant - breeding : comments on the experiments of Nilsson and Burbank
London: [Kegan Paul, Trench, Trübner & Co. Ltd.], 1907. - 360 p.
FORUM - SPEC.COLL. - C0663; http://edepot.wur.nl/69525

Vries, H. de; MacDougal, D.T.; Species and varieties : their origin by mutation
Chicago [etc.]: Open Court Publishing Company [etc.], 1905. - 847 p.
FORUM - STACKS - 1292F01

German botanist Carl Erich Correns (1864 - 1933) is notable for his independent discovery of the principles of heredity, and for his rediscovery of Gregor Mendel's earlier paper on that subject. Correns was a student of Karl Nägeli, a renowned botanist with whom Mendel corresponded about his work with peas, but who failed to understand how important Mendel's work was.

Correns, C.; Bastarde zwischen Maisrassen : mit besonderer Berücksichtigung der Xenien
Stuttgart: Nägele, 1901. - XII, 161 p
FORUM - SPEC.COLL. - Q0356

Correns, C.; Über Vererbungsgesetze : Vortrag .... der Naturwissenschaftlichen und der Medizinischen Hauptgruppe der Versammlung Deutscher Naturforscher und Ärzte in Meran am 27. September 1905
Berlin: Bornträger, 1905. - 43 p.
FORUM - SPEC.COLL. - N0142

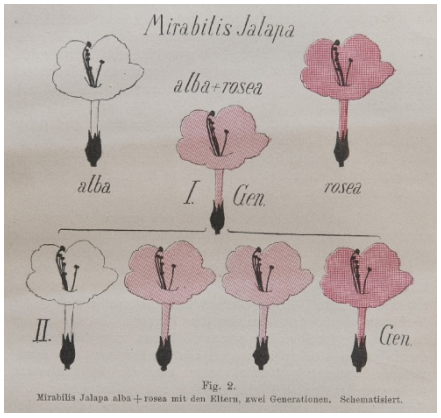


Fig. 2.
Mirabilis Jalapa alba + rosea mit den Eltern, zwei Generationen. Schematisiert.

Erich von Tschermak-Seysenegg (1871-1962) was an Austrian agronomist who developed several new disease-resistant crops, including wheat-rye and oat hybrids. His maternal grandfather taught Gregor Mendel botany during his student days in Vienna. Von Tschermak is one of three men - see also Hugo de Vries and Carl Correns - who independently rediscovered Gregor Mendel's work on genetics. Von Tschermak published his findings in June 1900.

Tschermak - Seysenegg, E. von; Leben und Wirken eines österreichischen Pflanzenzüchters : Beitrag zur Geschichte der Wiederentdeckung der Mendelschen Gesetze und ihre Anwendung für die Pflanzenzüchtung
Berlin [etc.]: Parey, 1958. - 196 p.
FORUM - STACKS - 490F32

Nikolai Vavilov (1887-1943) was a prominent Russian and Soviet botanist and geneticist best known for having identified the centres of origin of cultivated plants. He devoted his life to the study and improvement of wheat, corn and other cereal crops that sustain the global population.

Vavilov, I.; La loi des series homologues dans la variation
Paris: Laboratoire d'Agronomie coloniale, 1923. - 4 p.
FORUM - STACKS - BrQC25

Other publications on the (re)discovery of the principles of heredity:

Giltay, E.
Mendel-Tabellen : Übersicht der Erklärung einiger Haupterscheinungen bei Hybriden nach Mendelschem Prinzip
Wageningen: Kniphorst, 1912. - 8 p.
FORUM - SPEC.COLL. - QE0022

Giltay, E.
Het principiële uit de Mendel-leer en haar konsequenties
Wageningen: [s.n.], 1914. - 26 p.
FORUM - SPEC.COLL. - QE0057

Sirks, M.J. ; Nägeli, C. von
De erfelijkheidsbeschouwingen van Carl von Nägeli (1817-1891)
[S.l.: s.n.], [ca. 1892]. - 19 p
FORUM - SPEC.COLL. - QE0235

Sirks, M.J.
Vijftig jaar na Mendels ontdekking
[S.l.: s.n.], [ca. 1915]. - 31 p.
FORUM - SPEC.COLL. - QE0236

History and Development of the Plant Breeding Institute (IvP)

The history of the Plant Breeding Institute begins already in 1912 when the Institute for Breeding of Field Crops was established as a unit of the State College for Agriculture, Horticulture and Silviculture (the predecessor of the Wageningen University). Shortly after the name is changed into Plant Breeding Institute (IvP), an institution in which all aspects of breeding are concentrated: education, research, variety development, registration and testing. Many of these tasks have gradually been taken over by daughter institutes. Famous cultivars like 'Wilhelmina' and 'Juliana' wheat are for ever connected with the IvP and the names of the first directors, professors Pitsch, Broekema and Dorst, live on in the memory of many people.

The name Laboratory of Plant Breeding was given to the former IvP at the educational reform in 1997, the core tasks (education and research) have been expanded. The laboratory became a modern and fully equipped centre of education and research in which about 15 permanent staff and ca. 50 temporary staff, for the larger part young graduates are employed. Many of the non-permanent staff are employed as Research Assistants (AIO) and prepare their Ph.D. thesis.

In this display 4 aspects of the Plant Breeding Institute: the scientific productivity, the close ties between the institute and the industry in The Netherlands, the characteristic Amsterdam style building and the daughter institutes and last but not least the education of students.

Scientific output

Euphytica was launched in 1952 under the chief editorship of Prof. Dr. Ir. J.C. Dorst. In the beginning the journal published articles in English as well as in Dutch. The Dutch articles were mainly short announcements about plant breeding in the Netherlands. Since 1988 the journal was transferred to Kluwer Academic which became Springer. The most cited article, over 700 citations, to date is Donald (1968) The breeding of crop ideotypes (http://tinyurl.com/a28k3am). The most cited article from authors of the Plant Breeding Institute to date, is Parlevliet & Zadoks (1977) The

integrated concept of disease resistance: A new view including horizontal and vertical resistance in plants (http://tinyurl.com/bdcl8fr).

Euphytica : international journal of plant breeding
Wageningen: Stichting Euphytica
WWW - AANWEZIG Vol. 1(1952)-
FORUM - STACKS - NN35241

In the 1920's and the 1930's M.J. Sirks made studies on legumes at the Plant Breeding Institute and specialised into general genetics. As a result of this work he wrote his 'Handboek der Algemeene Erfelijkheidsleer' in 1922, which ran five impressions and was also translated into English in 1956. In 1937 Sirks was appointed as professor in genetics at Groningen University.

Sirks, M.J.
Handboek der algemeene erfelijkheidsleer
's-Gravenhage: Nijhoff, 1922. - 494 p.
FORUM - SPEC.COLL. - QE0361

Sirks, M.J.
General genetics
The Hague: Nijhoff, 1956. - 628 p.
FORUM - STACKS - 493C21

The complete collection PhD theses is a showcase of the scientific progress over the past 100 years. A total of 157 theses have been produced. Disease resistance is the most popular subject after plant breeding itself. The potato is the most studied crop, subject of 40 theses followed by wheat, barley and tomatoes.

The complete collection of PhD theses is electronically available at: http://tinyurl.com/b5t9sfa

Cooperation with industry

Variety lists play an important role in the history of the Plant Breeding Institute. After Broekema was appointed as professor in the Plant Breeding and director of the Plant Breeding Institute he was closely involved in the preparation of the first descriptive lists of varieties. The first edition was published as a stencil ahead of the ministerial approval for the new regulations on variety testing in October 1924. The variety lists evolved in to a full guide indispensable for Dutch breeders and growers.

Beschrijvende rassenlijst ... / Instituut voor Plantenveredeling
Wageningen: Instituut voor Plantenveredeling
FORUM - STACKS - NN35544. - 1934

Aanbevelende rassenlijst. Akkerbouwgewassen = Recommended list of varieties. Arable crops / [Commissie Samenstelling Aanbevelende Rassenlijst, CSAR]
Gouda [etc.]: Plantum NL [etc.]
FORUM - STACKS - NN45426. - 1991
FORUM - BOOKS - 504/2012-02

The involvement of researchers from Wageningen with the industry was expressed in the special publication for the centennial of Van der Have in 1979. The book gives an overview of plant breeding at that moment, was edited by Prof. J. Sneep and A.J.Th Hendriksen from Van der Have and contains many contributions from researchers in Wageningen.

Sneep, J. ; Hendriksen, A.J.T.
Plant breeding perspectives : centennial publication of Koninklijk Kweekbedrijf en Zaadhandel D.J. van der Have, 1879-1979
Wageningen: PUDOC, 1979. - 435 p.
FORUM – STACKS – 1294D17
http://edepot.wur.nl/240723

Broekema Plaquette
The Broekema plaquette was a design by the sculptor August Falise from Wageningen. It shows the profile of Prof. Dr. L. Broekema in relief. The plaquette was awarded by the Broekema foundation to A.R. Zwaan for his contribution to plant breeding in the Netherlands.

Wageningen: HISTORISCH ARCHIEF Wageningen UR

Buildings and spin-offs

The Plant Breeding Institute started in the Heerenstraat. In 1924 the characteristic building at the Lawickse Allee became the home of the institute.

Swan-van der Heijn, F. van der
Plant Breeding Institute, Wageningen, Autumn 1986
Water Colour
Wageningen: Chair group Plant Breeding, Wageningen University

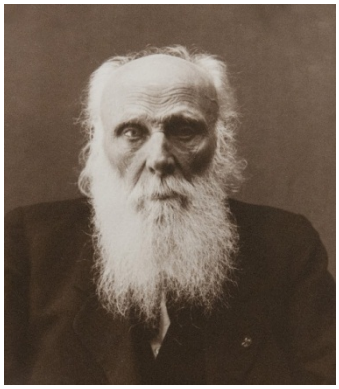
The buildings of the Plant Breeding Institute (IvP) at the Lawickse Allee (left). A spin-off of the institute is the Foundation of Plant Breeding (SVP). In the beginning they shared offices with IvP but later they moved to De Haaff at the Droevendaalsesteeg (right). Close to De Haaff was the Institute for Horticultural Breeding (IVT) (bottom right). The Instituut voor Rassenonderzoek van Landbouwgewassen (IVRO/RIVRO) was also a spin-off from the IvP and was later housed in Villa Nergena (bottom left).

Haan, H. de
Vijftig jaren Instituut voor Plantenveredeling der Landbouwhogeschool [1912 - 1962] : samengesteld ter gelegenheid van het 50-jarig bestaan.
Wageningen: [L.H.], 1962. - 43 p.
FORUM - STACKS - BrKU10
http://edepot.wur.nl/239127

Internationaal Agrarisch Centrum (Wageningen)
Agricultural science in the Netherlands : including the former guide: Wageningen, Centre of agricultural science...
Wageningen: International Agricultural Centre
FORUM - STACKS - NN05214 – 1962, 1950 en 1974-1976

Teaching

O. Pitsch



Otto Pitsch (1842-1939) was appointed as the first director of the Plant Breeding Institute in 1912. Although a generalist in agricultural sciences, plant breeding was his major passion. His essay 'Waarheen op het gebied der veredeling van kultuurgewassen?' concluded with a plea to establish an institute of plant breeding following the Swedish example of Svälof.

Pitsch, O.
Waarheen op het gebied der veredeling van kultuurgewassen?
Wageningen, H. Veenman, 1909. - 128 p.
Mededeelingen van de Rijks Hoogere Land-, Tuin- en Boschbouwschool en van de daaraan verbonden instituten Dl.2, p. 41-117
FORUM - SPEC.COLL. - C0940
http://tinyurl.com/9woy2kj

C. Broekema

Professor C. Broekema (1883-1940) was the first professor/director of the Plant Breeding Institute. Although a specialist in animal breeding, he wrote one of the first textbooks for plant breeding.

Broekema, C.
Dictaat plantenveredeling
[Wageningen]: [Vakgroep Plantenveredeling], [1927]. - 75 p.
FORUM - STACKS - 482B22

J.C. Dorst

The lecture notes of Professor J.C. Dorst.

Dorst, J.C.
Colleges plantenveredeling over de jaren 1945, 1957, 1959, 1960 en 1961
[Wageningen]: Dorst, [1945-ca. 1961]. - [ca. 100] p.
FORUM - SPEC.COLL. - 012A09

J. Sneep

The lecture notes of Professor J. Sneep.

Sneep, J.
Plantenveredeling : kand.-A1
Wageningen: L.H., 1977. - 51 p.
FORUM - STACKS - 441B15

J.E. Parlevliet

The most recent textbook from staff of plant breeding in English as well as translated in Chinese.

Niks, R.E. ; Parlevliet, J.E. ; Lindhout, P. ; Bai, Y.
Breeding crops with resistance to diseases and pests
Wageningen: Wageningen Academic Publishers, cop. 2011. - 198 p.
FORUM - BOOKS - 504-D/2011-01

Niks, R.E. ; Parlevliet, J.E. ; Lindhout, P. ; Bai, Y.
植物抗病蟲育種
[Beijing]: Science Press, 2012. - 173 p.
FORUM

Potato Breeding

This display shows items related to breeding one of the major food crops and a favourite research topic in Wageningen. Latin America is the centre of origin of potato, where among many wild species, one of the edible tuber bearing species was domesticated. Spanish explorers introduced the potato in Europe. Potato has become a major crop species for European agriculture and food production. The Netherlands is a typical potato country, with several of the largest breeding companies. Collectively they hold 80% of the global export of seed potatoes. Potato breeding starts with finding genetic variation to choose parents with resistance against many kinds of pests and pathogens and adequate quality characteristics. They are crossed, and subsequent clonal selections result in the identification of a superior cultivar which is clonally propagated, and should be kept free of virus. Geert Veenhuizen was a successful breeder at the beginning of this century. Potato breeding currently relies on detailed knowledge of genetics and information resulting from the genome sequence.

See also Resource, 26 January 2012: http://resource.wur.nl/en/wetenschap/detail/a_new_potato_faster/

Genetic diversity of potato in America. Cultivated potato originates from South and Central America, especially from the slopes of the Andes. Potato cultivars from Latin America are more diverse for tuber shape and skin colour than those in Europe.

Basket with South America potato varieties and potato seed [Object]
RADIX Plant Breeding

Haan, S. de; Catalogo de variedades de papa nativa de Huancavelica, Peru
Lima: Centro Internacional de la Papa [etc.], 2006. - 206 p.
PLATAX - Hdb 10 - 29-044

Many wild species that belong to the gene pool of potato have been collected in stored in gene banks. Gene banks serve modern plant

breeding by supplying donor species of resistance genes against pests and pathogens.

Hijmans, R.J.; Atlas of wild potatoes
Maccarese : IPGRI, 2002. - X, 130 p.
FORUM - BOOKS - 504-G/2002-01; http://edepot.wur.nl/85661

Taxonomy of potato

Many books have been written on the taxonomy of wild and cultivated potato species, but there is still considerable disagreement on the number of species and their evolutionary relations.

Hawkes, J.G. ; Hjerting, J.P.; The potatoes of Argentina, Brasil and Uruguay : a biosystematic study
Oxford: Clarendon, 1969. - 525 p.
FORUM - STACKS - 417C27

The Solanaceae family (nightshades) contains many species, including important crop species like potato, tomato, egg-plant, pepper, tobacco and petunia. They typically have star-shaped flowers with 5 anthers, 5 petals and 5 sepals. Species in the genus Solanum produce seeds in berries.

Tomato plant [Solanum lycopersicum L.] / painted by Alida Withoos, ca. 1700
In: Konstboeck van Simon Schynvoet : [verzameling botanische illustraties] / A. Withoos [et al.]
[Amsterdam?]: [s.n.], [1690-1750?]. -
FORUM - SPEC.COLL. - R355A02 ;
Rladeblok2,lade1; http://library.wur.nl/desktop/tulp/konstboeck/index.html

Introduction of potato cultivation in Europe

Potatoes were first introduced in Europe in 1570. It took at least one more century before potato was widely grown as a food crop. Adoption of potato cultivation was reconstructed by Oliemans. He used the date of court cases where farmers were sued who did not pay tax (a percentage

of the harvest). Farmers who switched from cereals to potato could escape tax, because potato was not yet listed for taxation.

Oliemans, W.H.; Het brood van de armen : de geschiedenis van de aardappel te midden van ketters, kloosterlingen en kerkvorsten
s-Gravenhage: SDU, 1988. - 348 p.
LEEUW - 226/1988-002 ; FORUM - BOOKS - 513-C-1/1988-01

The first European consumer of potato that we know by name was Saint Teresa de Avila (1578). She wrote: ".. the potatoes that I received just when I was in urgent need of food tasted me wonderfully well, ..."

Sculpture of Saint Teresa in ecstasy. In: Wittkower, R.; Gian Lorenzo Bernini : the sculptor of the Roman baroque
London: [s.n.], 1955. - 255 p.
FORUM - STACKS - 1225F01

Ludwig and Pereboom argued that, although potato was a crop that only recently was known to humanity, the historical accounts by Moses on creation make clear that it is a plant species that is as old as all other plants.

Ludwig, J.A.J. ; Pereboom, C.
Verhandeling over den aart, de voortplanting, en het veelerhande gebruik der nuttige aardappelen
Te Hoorn en te Amsterdam: by T. Tjallingius ; by Jan Doll, 1772. - [4], 75 [= 105], [4] p.
FORUM - SPEC.COLL. - RC0159

The Irish Famine

The first potato stock introduced into Europe was not challenged by potato pests and pathogens. But once these pathogens (such as late blight, Phytophthora infestans) crossed the ocean, they caused devastating epidemics. The most infamous epidemics of late blight occurred from 1845 to 1851 in Ireland, and caused one million Irish to die from starvation. This Irish famine prompted another million Irish to migrate to the USA.

Póirtéir, C.; A:The great Irish famine
Dublin: Mercier Press, cop. 1995. - 283 p.
FORUM - STACKS - 1702C06

Bouman, J.
Bijdragen tot de vaderlandsche landhuishoudkunde. - Nieuwe uitg.
Te Purmerende: bij J. Schuitemaker, 1844-1848. - 4 dl. in 1 bd.
FORUM - SPEC.COLL. - RA0358

Diseases , pests and pathogens in potato

In the course of the four centuries of potato cultivation in Europe, at least two hundred pathogen and pest species were found. Most of them only infect potato and some other members of the Solanum family.

Asscheman, E. ; Brinkman, H. ; Bus, C.B. ; Zaag, D.E. van der
Aardappel ziektenboek : ziekten, plagen en gebreken
Den Haag: Aardappelwereld, 1994. - 180 p.
FORUM - STACKS - 1069B40 / 1277B61 / 463F41

Two plates with potato pest.
In: Dressel, A. ; Appel, O. ; Riehm, E.; Atlas der Krankheiten der landwirtschaftliche Kulturpflanzen : erste Reihe
Berlin: Parey, 1924. - 22 Taf.
FORUM - SPEC.COLL. - R375C21; SAE_WUR011/032; http://edepot.wur.nl/240948

Already before the discovery of the genetic laws by Mendel (1865) some pioneering botanists started to cross potato clones to combine genetic properties into improved potato varieties. The Vilmorin firm was founded as a plant and seed boutique in 1742 by seed expert Mme Claude Geoffroy and her husband Pierre Andrieux. In 1774, their daughter married Philippe-Victoire Levêque de Vilmorin. Together, they created the Vilmorin-Andrieux house. The company was family-controlled for almost two centuries. Today it is owned by agro-industrial

cooperative Groupe Limagrain, the largest plant breeding and seed company in the European Union.

Vilmorin – Andrieux; Les plantes potageres, description et culture des principaux legumes des climats temperes /
Paris: Vilmorin-Andrieux, 1883. - 650 p.
FORUM - SPEC.COLL. - L0007

Vilmorin Andrieux (Paris); Album Vilmorin : fleurs rustique annuelles et vivaces legumes et plantes fourrageres
Paris: Vilmorin Andrieux, 1850-1870, 3 dl. - Plaat 20, 1869
FORUM - SPEC.COLL. - RPk.VIII-A-04

Luther Burbank (1849 -1926) developed the famous American variety Russet Burbank. This variety is still very popular.

Whitson, J. ; John, R. ; Williams, H.S. ; Luther Burbank : his methods and discoveries and their practical application
New York [etc.]: Luther Burbank Press, 1914-1915. - 12 vol.
FORUM - SPEC.COLL. - C1330

Burbank, L.; Fundamental principles of plant breeding
New York: [s.n.], 1902. - 7 p.
FORUM - STACKS - BrSI23

In The Netherlands Geert Veenhuizen (1857-1930) crossed potato varieties, and selected in the progeny such successful varieties as Eigenheimer and Rode Star.

Portrait Geert Veenhuizen [Painting]
RADIX Plant Breeding

Geert Veenhuizenfonds; Aangeboden aan het instituut voor Plantenveredeling, Afd. Aardappelen Wageningen uitgereikt in 1968 [Makkumer ceramic plate]. See also: http://library.wur.nl/WebQuery/gkn/lang/1213050
RADIX Plant Breeding

In order to combine traits of different varieties, pollen is transferred from the flowers of one variety (father) and brushed onto the sigma of the flowers of the other variety (mother). The anthers in the flowers of the mother are first removed to prevent self-pollination. Labels are used to mark the pollinated flowers.

Photograph of pollinated flowers / Plant Breeding
RADIX Plant Breeding

Commercial cultivars. Before the advent of colour photography, artists depicted the relevant traits of the commercially grown potato cultivars. Booklets were published to inform potato growers on the available potato cultivars, listing their properties, like level of resistance, quality traits and suitability for cultivation on certain soil types.

[Verzameling olieverfschilderingen van aardappelsoorten op 140 kartonbladen (Collectie Van der Boon - Mesch)], [ca. 1870] .
FORUM - SPEC.COLL. - R362Bot.ill.

Schleyer, A.; De aardappelplant in woord en beeld [3D model]
Assen: Stoomdrukkerij Floralia [W. van Gorcum], [1908]. - 12 p. : uitslaande pl.
FORUM - SPEC.COLL. - R-Modellendoos-1

Hogen Esch, J.A. ; Nijdam, F.E. ; Siebeneick, H.; Nederlandse aardappelatlas
Wageningen: Veenman, 1955-. - 2 bd.
FORUM - STACKS - 479E27 / 518A42

Selection of nursery catalogues

Potatoes are used for fresh consumption, starch production (for glues and gelling agents), French fries and crisps. Some of these markets require specific tuber or starch properties, and hence, constitute separate and alternative breeding objectives.

Several potato-derived products.
RADIX Plant Breeding

Normally potatoes are grown from seed tubers that are clonally propagated. A great concern in seed tuber production is the possible infection by viruses that affect yield potential and quality of the crop. As an alternative, in some developing countries, potatoes are grown from true seeds. These tend to be free of virus, and hence give a more healthy crop. However, seeds are sexually produced, and in potato they give a genetically heterogeneous crop.

Seed sachet
RADIX Plant Breeding

Several prominent Wageningen professors wrote their PhD thesis on a subject in potato.

DNA-sequencing in potato. Recently, 14 July 2011, the complete sequence of the potato genome has been published. The potato genome sequence will provide a major boost to gaining a better understanding of potato trait biology, underpinning future breeding efforts.

Nature : international journal of science
London: Macmillan Journals, 2011. - Vol. 475, no. 7355
FORUM - STACKS - nn02709 - Vol. 1(1869)- ; WWW - Vol. 325(1987)-