FIFTY FIVE YEARS OF SCIENTIFIC WORK OF PROFESSOR HANNA ZARZYCKA D.SC. (AGR.)

Professor Hanna Zarzycka was born on 13 December 1928 in Warsaw (her maiden name was Dabińska). She attended the primary and secondary schools in Warsaw, while in 1939 the World War II broke out. After finishing the schools in 1947 Professor Zarzycka studied at the Warsaw Agricultural University (SGGW) and in 1952 graduated in horticulture obtaining the degree of Master of Science in plant pathology on the basis of a Master's thesis "Biologia grzyba *Clasterosporium carpophilum* (Lev.) Aderh. powodującego dziurkowatość liści drzew pestkowych" ("Biology of *Clasterosporium carpophilum* (Lev.) Aderh., the causing agent of shot hole of stone fruits") under the guidance of Professor Józef Kochman.

In 1952 Professor Zarzycka was employed as a research assistant in the Section of Industrial Plants of Institute of Plant Protection in Reguły. There she worked on diseases of fiber and oil crops, dealing with the problem of disease spread by affected seeds, new for Poland in those days. Professor Zarzycka examined mycobiota associated with seeds of flax, hemp, opium poppy and crambe (*Crambe abyssinica* Hochst.). She determined pathogenicity of the detected pathogens and worked out methods for control of the diseases they caused. She examined etiology of *Helminthosporium papaveris* Henn. on opium poppy and *Peronospora camelinae* Gäum. on gold-of-pleasure (*Camelina sativa* L. Cr.). Professor Zarzycka together with Dr. Sabina Czyżewska studied *Fusarium* species population pathogenic to flax in Poland. The results of the investigation were applied for breeding flax resistant to *Fusarium* wilt.

Professor Zarzycka obtained the D.Sc. degree in 1965 on the basis of dissertation: "Studia biologiczne nad gatunkami *Fusarium* na *Crambe abyssinica* Hochst." ("Biological study on *Fusarium* spp. on *Crambe abyssinica* Hochst.") – under the guidance of Professor Józef Kochman at the Warsaw Agricultural University.

In 1967 Professor Zarzycka moved to the Institute of Native Natural Fibres in Poznań where she dealt with diseases of flax and hemp. The increasing threat to flax by *Fusarium* wilt and seedling damping-off in Poland in the late 1960s caused rapid reduction of this crop area and a quick intervention was expected. Professor Zarzycka started her work on the problem. It yielded a series of works on the role of infested soil as the main source of *Fusarium* causing wilt of flax, and on disease control by crop rotation, by seed treatment and by plant spraying with fungicides.

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The latter included also examining the efficacy of new fungicides for seed dressing and plant spraying. This resulted in the first instruction for integrated protection of flax. Professor Zarzycka identified *Alternaria* spp. infecting the hemp.

The problematics of *Colletotrichum lini* (Westerd.) Tochinai physiological races was also undertaken by Professor Zarzycka in the beginning of 1970s. Her habilitation thesis published in "Zeszyty Naukowe SGGW" ("Scientific Fascicles of Warsaw Agricultural University") "Rasy fizjologiczne grzyba *Colletotrichum lini* (Westerd.) Tochinai w warunkach Polski" ("Physiological races of *Colletotrichum lini* (Westerd.) Tochinai in Poland) was the effect of the investigations. The degree of *doctor habilitatus* was granted to Professor Zarzycka in 1976 by Scientific Council of Warsaw Agricultural University.

In 1977 Professor Zarzycka moved to Division of Institute for Potato Research in Młochów. In 1997 after fusion of Institute for Potato Research with Plant Breeding and Acclimatization Institute she became the scientific worker of the latter Institute. The synthesis of initial material for potato breeding was one of the research problems of the Institute Division in Młochów. Professor Zarzycka was promoted to the position of laboratory head, working on synthesis of potato resistant to *Phytophthora infestans* (Mont.) de Bary and to pathogens causing dry rot and soft rot of potato tubers. She carried out the investigations on resistance of potato against its pathogens and on improvement of resistance assessment methods. The main scientific achievements of Professor Zarzycka on the turn of 1970s and 1980s, were improvement of resistance evaluation methods for breeding materials against *P. infestans*, i.e. potato tuber slice test, a test on entire tubers and a test on detached leaflets; also tuber test against dry and soft rot, as well as elaboration of resistance characteristics against late blight of potato standards and some wild potato species – sources of resistance for breeding.

Continuous evaluation of potato breeding materials for resistance against late blight (*P. infestans*), tuber dry rot (*Fusarium sulphureum* Schlecht.) and tuber soft rot (*Erwinia carotovora* subsp. *atroseptica* and *E. carotovora* subsp. *carotovora*) and maintaining these pathogens in a collection were led by Professor Zarzycka. She improved also the method of treatment and maintenance of *P. infestans* culture without negative effect on its aggressiveness and virulence.

In late 1980s Professor Zarzycka started investigation on the changes observed in Polish population of *P. infestans*. The samples of diseased potato leaves were collected from the whole of the country until 2000. She found out that the second mating type of *P. infestans* A_2, not observed in Poland till 1988 (neither in other countries, except for Mexico) began to be found in the collected samples. Its distribution in Polish population of *P. infestans* progressively increased up to 50% of population. The phenomenon was followed by progressive increase of aggressiveness and virulence of *P. infestans* isolates. Physiological races of the pathogen became more and more diversified. Professor Zarzycka studied sexual reproduction of the pathogen under laboratory and field conditions and found infectivity of oospores after overwintering in soil. Oospores may be the second source (beside infected tubers) of primary inoculum for potato. Professor Zarzycka observed and studied the increasing threat to potato: earlier outbreak of epidemics and rapid

breakdown of resistant potato cultivars. Similar changes in *P. infestans* populations occurred in other countries in Europe and North America. Professor Zarzycka cooperated with many institutions working on *P. infestans*: in The Netherlands (CPRO-DLO in Wageningen), in USA (Cornell University), in Peru (CIP in Lima), within the international program on investigation on late blight (PICTIPAPA) and in Poland – with Chief Inspectorate of Plant Protection (GIOR).

Professor Zarzycka was in charge of three grants:

– in cooperation with U.S. Department of Agriculture (continued also after 1991): "Resistance in potato hybrids to the fungus causing late blight",

– financed by the State Committee for Scientific Research "Dynamika ekspresji odporności ziemniaka na *P. infestans* w świetle zmian zachodzących w składzie populacji tego grzyba w Polsce" ("Dynamics of potato resistance expression to *P. infestans* in connection with the changes in Polish population of this pathogen"),

– financed by the State Committee for Scientific Research "Ocena znaczenia oospor *P. infestans* jako nowego źródła infekcji pierwotnej zarazy ziemniaka w Polsce" ("The assessment of *P. infestans* oospores as a new primary infection source of potato late blight in Poland").

Scientific papers of Professor Zarzycka and recommendations for agriculture based on results obtained in laboratory, on experimental plots and under field conditions on the entire territory of Poland were successively published in various scientific journals. Professor Zarzycka has published 144 works, including 77 research papers and 67 scientific reports and articles. She had promoted one Ph.D. student and reviewed two other Ph.D. dissertations and four habilitation theses.

In 1994 the Council of the State granted *doctor habilitatus* Hanna Zarzycka the title of Professor. In 2001 Professor Zarzycka was awarded the Gold Cross of Merit (Złoty Krzyż Zasługi) for her professional and scientific work.

Professor Zarzycka was a member of Scientific Councils in Research Centre for Cultivar Testing (Centralny Ośrodek Badania Odmian Roślin Uprawnych; 1972–1977), in Institute for Potato Research (1994–1996) and in Institute of Plant Breeding and Seed Science (1997–2001).

Professor Zarzycka's activity in scientific life is reflected by her membership in The Polish Phytopathological Society since 1972, Polish Botanical Society since 1959 and Polish Genetical Society since 1978. She is an active member of the Warsaw Division of The Polish Phytopathological Society, working as secretary of the Warsaw Division (1972–1982), member of the Warsaw Division Board (1985–1996), member of arbitration board (1993–1996) and member of the Society Board (1996–1999). She took part in standardization of Polish plant disease nomenclature performed by the Section of Nomenclature and Teaching of the Society. In the Mycological Section of the Polish Botanical Society Professor Zarzycka was a member of "Acta Mycologica" editorial committee (1998–2001).

The General Assembly of Members of The Polish Phytopathological Society in Lublin granted Professor Zarzycka the title of Honorary Member of the Society on 20 September 2005.

To Professor Hanna Zarzycka D.Sc. (Agr.) on the occasion of her 55 years of scientific work, we express our gratitude and respect and wish Professor a long life, good health, satisfaction with her achievements and further professional success.

Sylwester Sobkowiak