

Fifty-year Anniversary of Plant Protection Science

ALEŠ LEBEDA¹, VĚRA KROFTOVÁ², VÁCLAV KŮDELA³ and MARCELA BRAUNOVÁ⁴

¹Department of Botany, Faculty of Science, Palacký University Olomouc, Olomouc, Czech Republic;

²Agrotest fyto, Ltd., Kroměříž, Czech Republic; ³Division of Plant Health, Crop Research Institute, Prague-Ruzyně, Czech Republic; ⁴Czech Academy of Agricultural Sciences, Prague, Czech Republic

Abstract

LEBEDA A., KROFTOVÁ V., KŮDELA V., BRAUNOVÁ M. (2014): **Fifty-year anniversary of Plant Protection Science**. Plant Protect. Sci., **50**: 53–63

In 2014, the journal Plant Protection Science (PPS) completes 50 years of publication (1965–2014). However, its roots extend back to the year 1921. Today, it is an international scientific journal focused on all aspects of plant protection sciences, fully published in English. This occasion offers a fitting opportunity to describe some of the most important historical stages of the journal's development. In our brief historical overview, we summarise the changes in journal title, chief-editors, and editorial policy during the last fifty years, and with an examination of its importance, scope and readership. We present analyses of the journal's development, some for the entire period of 1965–2013, while others are limited to more recent decades. The journal's present place among the world's scientific journals is documented by analyses in the international citation databases, BIOSIS CI, SCOPUS, and WOS. An analysis of three particular citation databases were made in October 2013, while the overall period 1998–2013 was conducted from All Databases/ Thomson Reuters in March 2014. PPS is also included in other, important technical-literature databases, including Czech Agricultural and Food Bibliography, AGRIS/FAO database, AGRICOLA, CAB Abstracts, Current Contents, and Zoological Abstracts. Information about all of them is available in Ulrich's WEB database. In the final part of this paper, we summarise some recent achievements of the journal, and discuss some key topics related to its future development.

Keywords: history; international scientific journal; plant protection; scientometrics; editors; editorial policy; citation databases; journal scope; scientific impact; future prospects

CURRENT JOURNAL INFORMATION

Title: Plant Protection Science

ISSN (Print): 1212-2580

ISSN (On-line): 1805-9341

Publisher: Czech Academy of Agricultural Sciences

Periodicity: Quarterly

Average number of articles per year (2000–2013, except special issues): 25

Free access: <http://agriculturejournals.cz/web/PPS.htm>

BIOSIS Citation Index: since 1992

SCOPUS: since 2007, SJR 2012: 0,256

Web of Science: since 2012

HISTORY OF THE JOURNAL

On the occasion of publishing the 50th volume of the scientific journal *Plant Protection Science* (PPS)

in 2014, it is important to recognise those periodicals that can be regarded as forerunners of PPS.

The earliest journal leading to what is now PPS is the professional (technical) journal, *Ochrana rostlin* (OR) which translates to Plant Protection in English. In its 29-year history, there were two periods of transition; an initial period as a professional journal (1921–1925), followed by a transition leading to the scientific journal (1926–1950) (KŮDELA 1991).

1921–1925 period

During the years 1921–1925, OR was the official publication of the Committee for Agricultural and Agroindustrial Research Work in Prague. The first issue was published in May 1921. František Straňák (1875–1957) served as the first editor of the journal from 1921 to 1925 (KOLEŠKA 1995).

Supported by the Internal Grant Agency of the Palacký University in Olomouc, Project No. IGA_Pr-2014-001 (A. Lebeda), and Agrotest fyto, Ltd. Institutional Support No. RO0211 (V. Kroftová).

The objectives of OR were to accelerate the transfer of important research results into farmer practice; to facilitate communications between separate phytopathological research institutes and the national plant protection service; and to be the primary publication of the Czechoslovak Ministry of Agriculture for issues relating to crop plants, in particularly those concerning legislation.

Articles published in OR were written in a popular style. Summaries of annual reports about occurrences of plant diseases and pests; lists of well-tried and recommended plant-protection products and overviews of new books regarding plant diseases, pests, weeds, and plant protection also were published in this journal.

OR represents an important source of knowledge on the history of plant pathology, applied entomology, weed science, and crop protection (e.g. plant pathology *sensu lato*) in the former Czechoslovakia. According to AINSWORTH (1981), OR was among the first ten world journals that focused on plant pathology; the first one was *Zeitschrift für Pflanzenkrankheiten* in Germany established in 1891.

1926–1950 period

In December 1925, the Phytopathological Committee of the Association of Research Institutes in Czechoslovakia in Prague was established. Starting with Volume VI in 1926, OR became an official publication of this Committee. František Straňák (1875–1957) continued as editor from 1926 to 1930. He was followed by Ctibor Blatný (1897–1978) who served as editor from 1931 to 1942 (BOJŇANSKÝ 1979). As editor and

author of numerous articles, he contributed markedly to the improvement of the journal's quality. After World War II Jaroslav Smolák (1882–1971) became editor from 1946 to 1950 (ANONYMOUS 1990).

During this period, it is noteworthy that there were more than ten reports from a special nomenclature committee and other individuals who attempted to provide uniform and scientifically-correct Czech names for plant diseases. These reports served as an initial basis for the modern compendium of Czech phytopathological nomenclature and terminology developed by KŮDELA *et al.* (2012), reviewed by LEBEDA (2013).

Besides its offerings of popular-science articles, OR also published scientific articles that served as preliminary communications. Selected articles were included regularly in the *Review of Applied Mycology* and other journals that attempted complete listings of the titles and abstracts of publications on diseases and pests of plants and their control. For example, E. Baudyš (SKUHRAVÁ 1966; BLATNÝ 1968) renowned Czech specialist on plant health, was probably the first scientist to report that mosaic virus could enhance the defense of hosts against a number of different pathogens (MATTA 1980). His first communication was published in OR in Czech with a German summary (BAUDYŠ 1929). This article was recorded in *Review of Applied Mycology*, **10**: 78–79 (1931) (KŮDELA 2002).

Up until 1933, OR was published bimonthly. It was not published from 1934 to 1937 for technical reasons or from 1943 to 1945, probably due to wartime and economic problems. In the intervening years

Table 1. Volume numbering and periodicity of the journal Plant Protection Science (PPS) and its forerunner Ochrana rostlin (OR)

Years	Name of journal/Volume numbering			Periodicity
	Ochrana rostlin	Sbornik UVTI Ochrana rostlin	Ochrana rostlin (Plant Protection)	
1921–1933 ¹	I–XIII			bimonthly
1934–1937 ¹				not published
1938–1942 ¹	XIV–XVIII			annually
1943–1945 ¹				not published
1946–1947 ¹	XIX–XX			annually
1948–1950 ¹	XXI–XXII			bimonthly
1951–1964 ¹				not published
1965–1989		1–25		quarterly
1990–1997			26–33	quarterly
1998–2014				34–50 quarterly

¹Data were obtained from Catalogue of Antonín Švehla Library in Prague

(1938–1942), it was published annually. Annual publication resumed in 1946. In 1948, OR returned to a bimonthly schedule (Table 1). By the end of 1950, OR had ceased publication. In that year, four issues were published, each represented by six printed pages in an edition of 1000 copies.

The transition to Plant Protection Science (1965–present)

A new journal, titled **Sborník ÚVTI - Ochrana rostlin**, was established in 1965 (Sborník = Proceedings, ÚVTI = Institute of Scientific and Technical Information). *Sborník ÚVTI - Ochrana rostlin* was published by Ústav vědeckotechnických informací – ÚVTI until 1975. In 1976, the publisher's name was changed to Ústav vědeckotechnických informací pro zemědělství – ÚVTIZ (Institute of Scientific and Technical Information for Agriculture) and, at that time, the title of the journal changed to **Sborník ÚVTIZ - Ochrana rostlin**, with the subtitle *Vědecký časopis* (Scientific Journal), which was used until 1989. In 1990, the journal was renamed back to **Ochrana rostlin (OR)**, and the subtitle **Plant Protection** was used from 1993 to 1997. The present title, **Plant Protection Science (PPS)**, has been used since 1998 (KŮDELA 1998). Through 2010, PPS was published by the Institute of Agricultural Economics and Information under the auspices of the Czech Academy of Agricultural Sciences (CAAS). In 2011, the CAAS assumed a leading role in publishing PPS. The CAAS now serves as the publisher of 11 agricultural scientific journals (Czech Academy of Agricultural Sciences 2014; <http://www.cazv.cz/>).

Editors-in-Chief of the journal and editorial policy

During the fifty-year history of PPS five individuals have served as its Editor-in-Chief:

JAROSLAV ZAKOPAL (1965–1975), researcher and head of Plant Protection Division in the Research Institute of Crop Production in Prague (KOLEŠKA 2007);

VÍT BOJŇANSKÝ (1976–1987), researcher and director of the Institute of Experimental Phytopathology and Entomology in Ivanka pri Dunaji (ŠUBÍKOVÁ 2001; PLESNÍK 2006);

ZDENĚK ČAČA (1988–1990), professor of plant protection at the Agricultural University (recently Mendel University) in Brno (VEVERKA 2005);

VÁCLAV KŮDELA (1991–2006), researcher in the Research Institute of Crop Production in Prague,

and professor of plant protection at the South Bohemian University in České Budějovice (LEBEDA & VEVERKA 2006; ZBUZEK 2007);

ALEŠ LEBEDA (2006–present), professor of plant pathology at Palacký University in Olomouc (ANONYMOUS 2011; KŮDELA *et al.* 2011).

Editors-in-Chief are nominated, selected and confirmed by the Branch for Plant Protection of the CAAS.

Executive editors within the editorial office also play important roles. From 1965 to 1973, Mrs. Ing. JARMILA ZEŽULKOVÁ served as an executive editor of OR. In 1974, Dr. MARCELA BRAUNOVÁ assumed this position and currently is still in that role. In March 2000, she also became headmaster of all scientific journals published recently by CAAS. She has made substantial contribution to the development of PPS in both administration and technical services.

In 1994, Canadian plant pathologist Dr JENS J. NIELSEN (Research Station, Agriculture Canada, Winnipeg, Canada) became a member of PPS Editorial Board (EB) where he contributed significantly in the area of linguistic and scientific amendments of the papers published in the journal from 1994 to 2010 (BARTOŠ & LEBEDA 2013).

Up until 1989, the EB was composed of only Czech and Slovak members representing the national research, academic and advisory communities. However, after changes in 1989 and the subsequent democratisation of the former Czechoslovakia, the EB gradually began appointing international members. Top international scientists from Austria, China, Germany, Hungary, Israel, Italy, Norway, Poland, Sweden, Switzerland, UK, and USA were nominated and appointed to the EB. Recently, more than 50% of the EB members have come from countries beyond the Czech and Slovak Republics.

PPS's reviewing process has substantially changed also over time and has become highly global. Currently, each manuscript is reviewed by at least one highly competent reviewer from abroad. Every year, a listing of all PPS reviewers is included in some issue of volume.

PURPOSE AND SCOPE OF THE JOURNAL

PPS is currently an international, interdisciplinary journal that publishes original research articles, critical reviews, short communications, and papers about new and unusual records of diseases, pests and weeds. The journal covers all topics dealing with the fundamental and applied aspects of plant pathology, insect pests and weeds, and crop protection science. Articles are

included in different subject areas, and include virology, bacteriology, phytoplasmas, mycology, nematology, entomology, weed science, plant stress and abiotic disorders, host-parasite interactions, host resistance and genetics, physiology and molecular biology of plant resistance, population biology and ecology, epidemiology, disease diagnosis and etiology, crop loss assessment, postharvest pathology, methods of disease control, biological control and pest management, and pesticide science.

Intended readership

The intended audience for PPS is rather broad and covers numerous groups including university teachers, crop protection specialists and advisers, and research scientists such as plant breeders, agronomists, horticulturists, foresters, biologists, botanists, microbiologists, plant pathologists, virologists, bacteriologists, mycologists, nematologists, entomologists, epidemiologists, soil scientists, weed scientists, and pesticide scientists.

PUBLICATION POLICY

From the journal's beginning until 1988, articles in OR were published only in Czech or Slovak, with Russian and German abstracts (rarely also in English). After 1989, the first seven articles were published in English. In 1991, OR's new EB discussed a new

publication strategy, ultimately deciding that PPS would become an international scientific journal. Since then, the number of English articles has steadily increased. After renaming of OR to PPS in 1993, there was increasing proportion of papers in English, and since 1999 all articles have been published in English (STEJSKAL & AULICKÝ 2003).

Publication trends for the most recent period (2000–2013) are shown in Table 2. During the last decade, there was an increase in the number of manuscripts submitted to PPS per year, which currently is between 80 and 90. During this time there also was an increase in the proportion of rejected manuscripts (Table 2). During the first part of the millennium (2000–2004), the percentage of rejected manuscripts was about 25%; during the last five years (2009–2013), the average percentage of rejected manuscripts was 56%. There also was an increase in the number of authors from abroad in comparison to Czech authors. From 2000 to 2004, the percentage of foreign authors was about 33%; more recently (2009–2013) it has been about 75% (Table 2). The number of regular issues published per year has been stable at four issues per year. However, the number of pages per volume has been increasing from 160 for the period 2000–2004 to 181 for 2009–2013. There has been a similar trend in the number of published papers per volume. From 2000 to 2004, each volume averaged about 22 papers, but during

Table 2. Survey of manuscripts processed in editorial system of PPS in the years 2000–2013

Year	Received for publication				volume pages	Published			
	submitted MS	rejected MS (%)	authors in the Editorial system			published papers		authors of published papers	
			CZ	abroad (%)		total	abroad (%)	total	abroad (%)
2013	82	52 (63)	14	68 (83)	197	31	15 (48)	94	48 (51)
2012	93	78 (84)	24	69 (74)	178	25	16 (64)	63	37 (59)
2011	69	42 (61)	16	53 (77)	176	20	11 (55)	49	29 (59)
2010	72	23 (32)	17	55 (76)	188	25	9 (36)	74	28 (38)
2009	54	10 (19)	19	35 (65)	167	23	11 (48)	102	78 (76)
2008	51	23 (45)	22	29 (57)	159	25	11 (44)	60	20 (32)
2007	43	15 (35)	20	23 (53)	148	28	10 (36)	60	22 (37)
2006	43	15 (35)	20	23 (53)	148	21	10 (48)	62	20 (32)
2005	44	13 (30)	26	18 (41)	170	26	10 (38)	71	21 (30)
2004	54	17 (31)	27	27 (50)	162	24	11 (46)	67	36 (54)
2003	35	8 (23)	22	13 (37)	162	24	7 (29)	45	24(53)
2002	38	7 (18)	25	13 (34)	156	23	11 (48)	63	22 (35)
2001	39	8 (21)	30	9 (23)	162	17	9 (53)	52	19 (37)
2000	32	10 (31)	25	7 (22)	156	21	7 (33)	70	21 (30)

Remark: numbers in each column per year are absolute numbers registered in Editorial System of Plant Protection Science

Table 3. The number of foreign authors who have published in Plant Protection Science during the period 2000–2013

Country	Number of authors/Years															total
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013		
Australia										1					1	
Austria	1														1	
Belgium											1				1	
Bulgaria	2				4										6	
Canada	1			3						13					17	
China														4	4	
Croatia	2														2	
Czech Republic	49	33	41	21	31	50	42	38	40	24	46	20	26	45	506	
Egypt		5					3	1	2	4	4	9	6		34	
France			1		1				1	7				1	11	
Germany	2		2	1						12					17	
Ghana														6	6	
Greece			1									1			2	
Hungary			1										3		4	
India						4	6				6	5	5	6	32	
Iran									1		3		14	6	24	
Iraq													4		4	
Israel										3					3	
Italy	1	5				2		2					1		11	
Jordan								4					2		6	
Kenya				3										5	8	
Malaysia									1			4			5	
Nigeria		1		2	4	7	5	1				1			21	
Norway												1			1	
Pakistan								4				4			8	
Philippines											4				4	
Poland	3				3			2	1	3					12	
Republic of Macedonia								3		3					6	
Russia					1		1							5	7	
Serbia								1							1	
Slovak Republic	7	8	10	6	19	4	5	4	13	3	5	2			86	
Slovenia				3											3	
Spain														1	1	
Sweden										3				3	6	
Switzerland										5				2	7	
Syria											1				1	
Tanzania			1	3				2		5				2	13	
Tunisia				3	2										5	
Turkey						2								4	6	
UK	1									8				1	10	
USA			6	2	2	2			1	1		1		2	17	
West Indies													2		2	
Yemen												1			1	
Yugoslavia	1														1	
Total	70	52	63	47	67	71	62	62	60	95	70	49	63	93	924	

Table 4. Plant Protection Science Special Issue volumes published in the period 2002–2013

Year	Special Issues (number of pages/number of papers/authors from abroad)
2002	722/208/179 ⁴
2009	66/10/1 ³
2012	48/6/3 ²
2013	54/8/13 ¹

¹LEBEDA and BURDON (2013); ²LEBEDA and POKORNÝ (2012);

³POKORNÝ and LEBEDA (2009); ⁴TÁBORSKÝ *et al.* (2002a,b)

the last five years (2009–2013) it has been about 25. During the same interval, the number of papers from abroad increased from 41% (2000–2004) to 50% (2009–2013) (Table 2).

Interesting results were obtained by the analyses of PPS publication activities (2000–2013) based on the number of authors from individual countries (Table 3). During the last decade there were 924 authors from 44 countries that published papers in PPS. Czech Republic authors still make up the highest percentage of authors (55%), followed by authors from the Slovak Republic (9%). The next most frequent countries are Egypt (4%), India (3%), Iran (3%), Nigeria (2%), Canada and Germany (both 2%), Tanzania, Poland and Italy (all 1%). From 2000 to 2004, the average number of countries represented was about nine, but during the last five years (2009–2013) this has increased to 12 countries per year (Table 3). These data clearly show a growing globalisation of PPS. Additionally, during last five years (2009–2013) there was an increase in the number of papers from countries publishing for the first time in PPS (e.g., China, Ghana, Iraq, Norway, Philippines, Spain, Sweden, Switzerland, Turkey, and the UK). The expanding international appeal of PPS

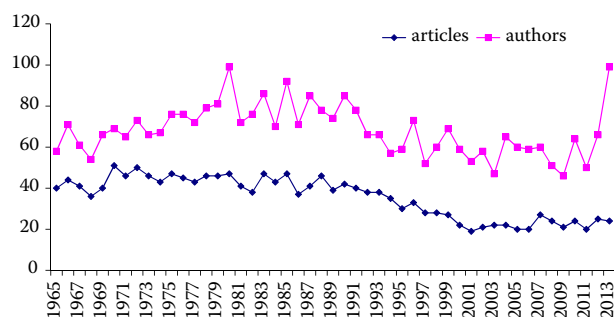


Figure 1. Numbers of articles and of authors published (1965–2013) in Plant Protection Science

Table 5. Average number of authors per article by decade

Decade	Average number of authors
1965–1974	1.49
1975–1984	1.78
1985–1994	1.86
1995–2004	2.41
2005–2013	2.70

indicates the growing status of PPS among countries with a tradition of research in plant protection sciences.

Some of the highlights of PPS are the special topics related to plant protection and plant pathology that are published as comprehensive Special Issues (Table 4). During last five years (2009–2013), there have been three special issue volumes focused on the impact of climate change on plant pathogens, pests and weeds (POKORNÝ & LEBEDA 2009); biotech-crops and their utilisation in plant protection (LEBEDA & POKORNÝ 2012); and wild-plant pathosystems (LEBEDA & BURDON 2013).

COMPARISON OF PREVIOUS AND RECENT PUBLICATION ACTIVITIES

For our analysis, we counted all original scientific articles together with short communications. We did not count articles in the Special Issues because they were published irregularly. In the last decade, the total number of articles published each year remained practically the same (Figure 1). However, an increasing proportion of articles written by multiple authors have occurred within the last 10 years (Figure 2). Single-author and two-author papers are still the most frequent; however, there is a growing trend of three, four, and five authors. Table 5 shows this same trend as the average number of authors per article has increased from about 1.5–1.9 to 2.7.

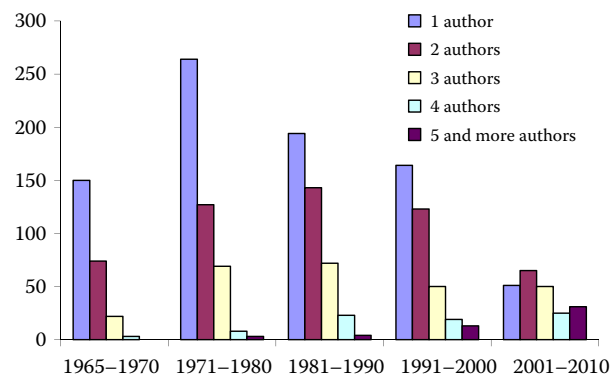


Figure 2. The number of single- and multiple-authored articles published in PPS between 1965 and 2010. Data were modified from STEJSKAL and AULICKÝ (2003)

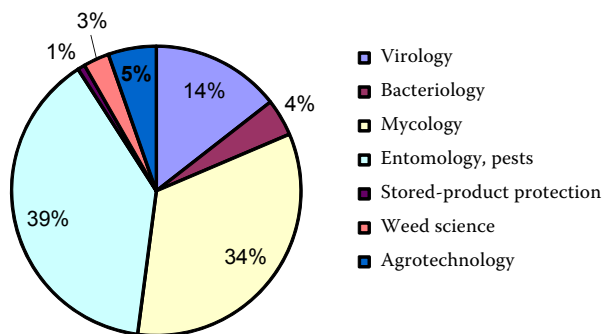


Figure 3. Percentage of articles related to various plant protection disciplines published in Plant Protection Science from 2003 to 2013

Over time, there have been some interesting changes in the spectrum of papers published related to the various plant protection disciplines. STEJSKAL and AULICKÝ (2003) conducted a detailed analyses of the relative proportions of articles representing the various disciplines up to 2002. Collectively, they were divided into nine disciplines: mycology (34.3%), entomology (20.9%), virology (20.9%), weed science/herbology (13.7%), bacteriology (4.9%), agroecology (3.2%), stored-product protection (1.7%), rodent control (0.2%), and air-pollution derived injuries (0.1%). From their analyses, it was clearly evident that during the first couple of decades there was a strong focus on mycology, entomology, virology and weed science (collectively about 90%).

We have extended STEJSKAL and AULICKÝ's (2003) work and report the disciplinary emphases of articles published between 2003 and 2013 (Figure 3). From our analysis, it is evident that the spectrum of articles has not changed significantly since 2003. The more recent articles focus on entomology and pest science (40%), mycology (33%) and virology (14%), together accounting for 87% of all the articles. However, in comparison with the previous period, there were fewer papers focused on weed science (Figure 3).

Scientific impact of Plant Protection Science

We assessed the scientific impact of PPS in three citation databases: BIOSIS Citation Index (OR 1992–1996, PPS since 1997), SCOPUS through SCImago portal (PPS since 2007), Web of Science/Thomson Reuters (PPS since 2012).

In the BIOSIS CI database, PPS (together with the older version, OR) has the longest history and the largest number of indexed articles, but the highest average number of citations per article, as well as the highest percentage of articles cited at least once,

Table 6. State of Plant Protection Science (PPS) and Ochrana Rostlin (OR) in citation databases

	Name of citation database		
	BIOSIS CI	SCOPUS	WOS
Years in database	22	7	2
Number of articles from OR	227	0	0
Number of articles from PPS	564	169	52
Total number of articles OR + PPS	791	169	52
Number of citations (2013/10/08)	921	261	7
Average citations per article	1.16	1.54	0.13
Journal H-index	9	7	1
Highest number of citations for one article	25	11	2
Number of articles cited at least once	350	89	6
Percentage of articles cited at least once	44.24	52.66	11.5

are found in the SCOPUS database (Table 6; BIOSIS Citation Index).

OR and PPS articles in BIOSIS CI and PPS articles in SCOPUS and WOS citation databases were grouped according to the numbers of citations received. Articles with ≥ 10 citations were found in BIOSIS CI as well as in SCOPUS (Figure 4).

BIOSIS CI Database

In the BIOSIS CI, we identified 227 OR article records published from 1992 to 1997. From 1998 to 2013 (October 8, 2013), BIOSIS also includes 564 articles from PPS (Table 6). The articles published in PPS and OR are more often cited in BIOSIS CI than in the other two databases, most likely because

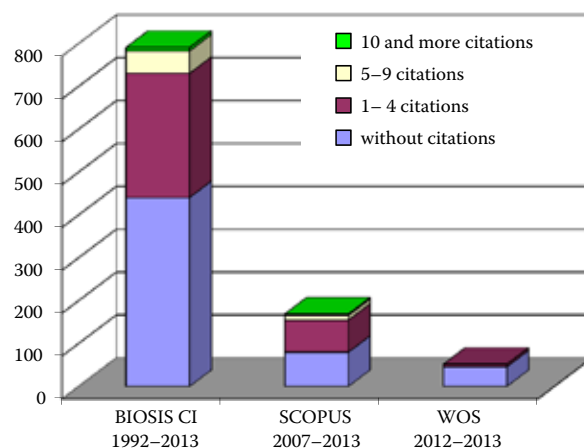


Figure 4. Citation analysis of Plant Protection Science articles in BIOSIS CI, SCOPUS and WOS (as of October 8, 2013)

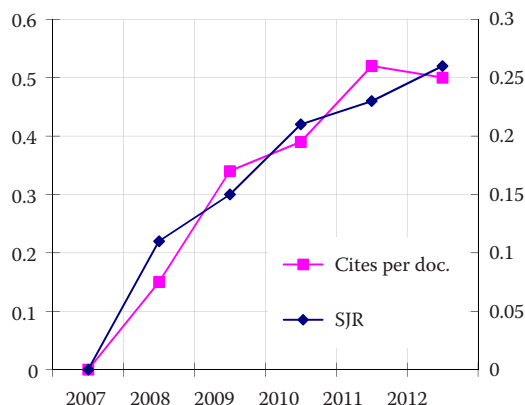


Figure 5. Plant Protection Science – SJR indicator vs. citations per doc. (per article) (2y) (extracted from SCImago/SCOPUS 2014)

of the longer history of the journal there. As might be expected, the article most cited (25 citations) is found in BIOSIS CI (Table 6).

SCOPUS Database

The SCOPUS database provides specific parameters for determining the scientific impact of the journals that it covers (SciVerse SCOPUS 2013; SCImago 2014). SCImago Journal Rank (SJR) is one of its main impact metrics, and attempts to quantify the scientific influence of the average article in a journal (GUERRERO-BOTE & MOYA-ANEGÓN 2012). It expresses the degree to which an article is central to the global scientific discussion. A parallel metric, Cites per doc. (2y) measures the scientific impact of an average article published in the journal. SCOPUS includes PPS articles published during the last 7 years. The SJR value for PPS for 2012 is 0.256. SCOPUS includes PPS in two disciplinary categories. For the year 2012, SJR ranked PPS 127th of 207 journals in the *Agronomy and Crop Sciences* category and 53rd of 74 journals in the *Soil Science* category. Ranking within the categories is important for evaluation of the journals also in the Web of Science (KROFTOVÁ 2011). SCImago also provides a comparison of SJR values and the number of citations per document. Both of these parameters have increased for PPS (Figure 5). A comparison of the total number of citations and journal self-citations in PPS-published articles (Figure 6) clearly illustrates the only a small proportion are journal self-citations.

WOS Database

In 1991, the editorial board of the OR first requested and repeatedly in 1996, 2001, and 2006, thereafter

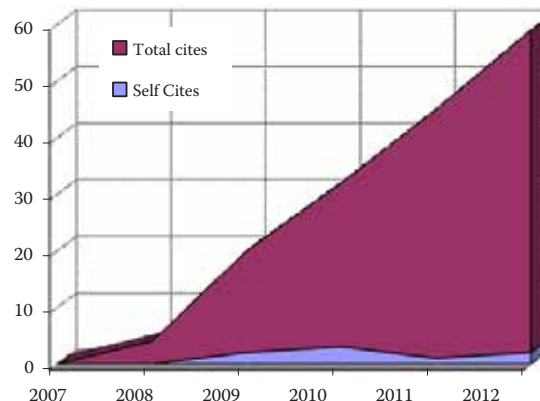


Figure 6. Plant Protection Science – citation vs. journal self-citation (extracted from SCImago 2014)

every two years) for inclusion of OR/PPS in Current Contents (Thomson IST' products).

PPS is still very new in the Web of Science (WOS) as its first article records appeared only in 2012 (Figure 4). According to Thomson Reuters, the first PPS Impact Factor (IF) value will be calculated for 2014 and made publicly available in approximately June 2015.

Comparison of Plant Protection Science with other journals published by the Czech Academy of Agricultural Sciences

The Czech Academy of Agricultural Sciences publishes eleven scientific journals covering many important aspects of agricultural science. All of them are indexed by SCOPUS. Details about the history and scientific contributions of these journals were summarised by KROFTOVÁ (2012). Some key comparative values to describe these eleven journals and their impacts are listed in Table 7.

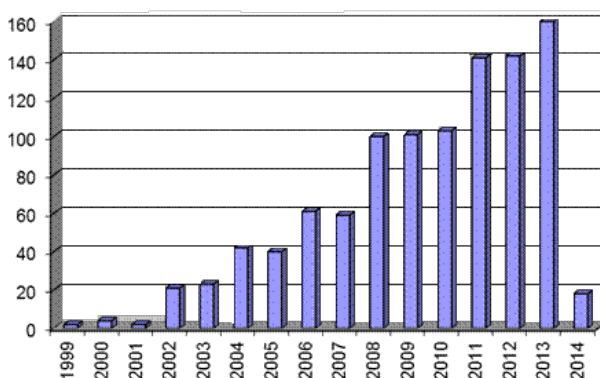


Figure 7. The overall citations of Plant Protection Science articles from 1999 to 2014 in All Databases/Thomson Reuters (as of March 27, 2014)

Table 7. Journals published by Czech Academy of Agricultural Sciences and indexed in SCOPUS (February 2014) by SJR 2012

	SJR	SCOPUS h index	Total Docs.		Total Refs.	Total Cites (3 years)	Citable Docs. (3 years)	Cites/Doc. (2 years)	Ref./ Doc.
			(2012)	(3 years)					
Plant, Soil and Environment	0.495	21	89	242	2018	332	242	1.30	22.67
Czech Journal of Animal Science	0.461	18	60	189	2027	208	189	1.03	33.78
Czech Journal of Food Sciences	0.438	12	72	347	1970	298	346	0.92	27.36
Journal of Forest Science	0.404	12	59	201	1881	134	199	0.55	31.88
Horticultural Science	0.326	8	22	65	511	61	65	0.90	23.23
Agricultural Economics	0.296	9	56	191	1564	153	191	0.73	27.93
Veterinární medicína	0.295	24	72	238	2511	190	238	0.77	34.88
Research in Agricultural Engineering	0.268	6	22	77	586	36	77	0.39	17.55
Plant Protection Science	0.256	5	25	75	723	56	74	0.50	28.92
Soil and Water Research	0.255	5	18	78	477	42	76	0.52	26.50
Czech Journal of Genetics and Plant Breeding	0.228	6	25	123	654	54	117	0.38	26.16

SJR	Scimago Journal Ranking indicator. It is a measure of journal's impact influence or prestige. It expresses the average number of weighted citations received in the selected year by the documents published in the journal in the three previous years
SCOPUS h index	Journal's number of articles (h) that have received at least h citations over the whole period
Total Docs. (2012)	Journal's published articles in 2012. All type of documents are considered
Total Docs. (3 years)	Journal's published articles in 2011, 2010 and 2009. All type of documents are considered
Total Refs.	Number of references included in the journal's published articles in 2012
Total Cites (3 years)	Cumulative number of citations per article published in for the years 2011, 2010, and 2009
Citable Docs. (3 years)	Journal's citable documents in 2011, 2010 and 2009. Citable documents include articles, reviews and conference papers
Cites/Doc. (2 years)	Average citation per document in a 2 years period. This metric is widely used as impact index
Ref./Doc.	Average amount of references per document in 2012

PLANT PROTECTION SCIENCE: CURRENT STATUS AND FUTURE PROSPECTS

Our analysis of PPS and its evolution over time has identified significant progress in eleven areas: (1) the timing of publication has become more regular and stable; (2) its editorial board has become international; (3) the number of submitted manuscripts has increased; (4) there has been an increasing selection for high-quality papers, as reflected in a decreasing manuscript acceptance rate; (5) an increase in the number of published papers per volume; (6) an increasing proportion of authors from both the Czech Republic and from abroad; (7) an increasing number of papers submitted from countries other than the Czech Republic; (8) an increasing number of multiple-authored papers; (9) the inclusion of PPS in the most important international journal databases (including the Web of Science); (10) an increasing number of external citations with a low number of self-citations; and

(11) availability of the journal in both printed and electronic format (which should lead to higher international availability, significance and impact).

However, for PPS's future improvement and growth, we would suggest the following crucial steps:

- (1) Continue to expand the proportion of foreign members on the EB.
- (2) Increase the efficiency and quality of the manuscript reviewing process.
- (3) Accelerate the publication process.
- (4) Continue expanding the international scope of the journal, seeking more contributions from countries that traditionally conduct high-quality research.
- (5) Increase the number of articles and pages of each volume.
- (6) Publish more comprehensive, high-quality reviews focused on various aspects of plant protection sciences.
- (7) Lead the journal to a more independent and sound financial basis.

- (8) Clarify and stabilise the rules of payment for page charges assessed for accepted manuscripts.

Plant pathology and plant protection represent a broad range of research activities, starting with the most basic sciences and proceeding through the applied and translational research that utilises and exploits advances in plant breeding, pest control and cultivation, and other disciplines. The future trajectories of these diverse arrays of activities are not easily predicted. However, a few years ago Prof Ray D. Martyn, former president (2008) of the American Phytopathological Society stated it this way: *“The discipline of plant pathology will continue to evolve into a more complex multidisciplinary science. Plant pathology research and the education of future generations of plant pathologists will be different from that of today and future students will need to be more broadly trained in fields outside of traditional plant pathology. What is important is what we learn about plant disease and their management from these new research tools and collaborations and how we communicate that to students and growers. There will always be a need for plant pathologists. We must continue to make plant pathology relevant so it does not “disappear like an exploding atom” (MARTYN 2009).*

These strong and enthusiastic words bode well for positive developments for PPS. We expect PPS will increasingly become a vital and integral part of the international plant pathology and plant protection community.

CONCLUSIONS

The scientific journal, Plant Protection Science, has made substantial progress during the last 50 years. Beginning as a local and national journal, it shifted to a fully international journal, with increasing international respect and impact. During the last two decades, PPS has been indexed by an increasing number of international scientific databases (Ulrichs Web), and in 2012, also in the Web of Science. These achievements parallel the political changes that occurred during the transition from the former Czechoslovakia to the Czech Republic and highlight the importance of a democracy and freedom for the progress of science and scientific publication (STEJSKAL & AULICKÝ 2003). Analyses have clearly demonstrated that the most important changes leading to the increasing international reputation of PPS occurred after 1989, coincident with the lifting of the “iron curtain”. The second-most important stage of PPS’s development

can be seen after 2005, when the authors and editorial board became more international. For the journal’s continual evolution, it is important that a clear editorial strategy and policy will be implemented.

Acknowledgments. The authors are thankful to Assoc. Prof. JAROSLAV BENADA, CSc., for his kind help with the sorting of articles into various plant-protection disciplines.

References

- AINSWORTH G.C. (1981): Introduction to the history of plant pathology. Cambridge University Press, Cambridge.
- ANONYMOUS (1990): Smolák Jaroslav [heslo]. In: SKALA, L.: Malý slovník biografii. III. P–Š. Sborník ČSAZ č. 138. Praha: 189–190.
- ANONYMOUS (2011): Životní jubileum – prof. Ing. Aleš Lebeda, DrSc. Rostlinolékař, **22**(4): 35–36.
- BARTOŠ P., LEBEDA A. (2013): Dr Jens Jürgen Nielsen (1927–2013) – Obituary Notice. Plant Protection Science, **49**: 104.
- BAUDYŠ E. (1929): Fytopatologické poznámky. V. Ochrana Rostlin, **9**: 108–128.
- BIOSIS Citation Index [on-line database]. Thomson Reuters, © 2013, New York. Accessible for authorised users at: <http://apps.webofknowledge.com> [Accessed 2013-10-08].
- BLATTNÝ C. (1968): Vzpomínka na Prof. Dr. Ing. Eduarda Baudyše, DrSc., nositele Řádu práce. Ochrana rostlin, **4**: 248.
- BOJŇANSKÝ V. (1979): Rozlúčka s akademikom Ctiborom Blattným (*8. 9. 1897–†15. 12. 1978). Sborník UVTI - Ochrana rostlin, **15**: 1–2.
- Czech Academy of Agricultural Sciences (2014): Praha. Available at <http://www.cazv.cz/> [Accessed 2014-01-20].
- GUERRERO-BOTE V. P., MOYA-ANEGÓN F. (2012): A further step forward in measuring journals’ scientific prestige: The SJR2 indicator. Journal of Informetrics, **6**: 674–688. See also at <http://www.scimagojr.com/files/SJR2.pdf>
- ISI Web of Knowledge [on-line database]. Thomson Reuters® New York. Available for authorised users at <http://apps.webofknowledge.com> [Accessed 2014-02-28].
- KOLEŠKA Z. (1995): Doc. PhDr. František Straňák, zakladatel a první organizátor moderní české ochrany rostlin. Rostlinolékař, **6**(4): 22–23.
- KOLEŠKA Z. (2007): Významný rostlinolékař a organizátor výzkumu v ochraně rostlin RNDr. Jaroslav Zakopal. Rostlinolékař, **18**(6): 42.
- KROFTOVÁ V. (2011): Změny v kategoriích Web of Knowledge (JCR – Science Edition) v letech 1998–2008 a úloha těchto kategorií v současném hodnocení výsledků VaV. [Trends in subject categories of WOK /JCR – Science Edition/ in 1998–2008 and the role of the categories in

- current evaluation of R&D results.] Listy cukrovarnické a řepářské, **127**: 67–70. Available at http://www.cukr-listy.cz/on_line/2011/PDF/67-70.pdf
- KROFTOVÁ V. (2012): Citační analýza českých vědeckých zemědělských časopisů, jejich postavení v databázích WOS – JCR a SCOPUS a návaznost na hodnocení výsledků VaVal za rok 2011. [Citation analysis of Czech scientific agricultural journals, their position in databases WOS-JCR and SCOPUS, and consequence to evaluation of RDI results in 2011.] Obilnářské listy, **20**(4): 101–105.
- KŮDELA V. (1991): Sedmdesát let časopisu Ochrana rostlin Ochrana rostlin, **27**: 177–181.
- KŮDELA V. (1998): New name of the journal and current challenge for publisher – Editorial Remark. Plant Protection Science, **34**: 2.
- KŮDELA V. (2002): Plant pathology in the Czech Republic. Proceedings 6th Conference EFPP 2002, Prague. Plant Protection Science, **38** (Special Issue 1): 1–8.
- KŮDELA V., KOCOUREK F., BÁRNET M. (2012): České a anglické názvy chorob a škůdců rostlin. Czech and English names of plant diseases and pests. Česká akademie zemědělských věd – Profi Press, Praha.
- KŮDELA V., REININK K., SINGH R., WIDRLECHNER M.P. (2011): Professor Aleš Lebeda at sixty. Plant Protection Science, **47**: 79–82.
- LEBEDA A. (2013): České a anglické názvy chorob a škůdců rostlin. Czech and English names of plant diseases and pests. (Book review). Plant Protection Science, **49**: 55–56.
- LEBEDA A., BURDON J.J. (eds) (2013): Wild plant pathosystems. Plant Protection Science, **49** (Special Issue): S1–S54.
- LEBEDA A., POKORNÝ R. (eds) (2012): Biotech-crops and their utilization in plant protection against diseases and pests. Plant Protection Science, **48** (Special Issue): S1–S48.
- LEBEDA A., VEVERKA K. (2006): Seventieth birthday of Professor Ing. VÁCLAV KŮDELA, DrSc. Plant Protection Science, **42**: 119–120.
- MARTYN R.D. (2009): Where will the next Norman Borlaug come from? A U.S. perspective of plant pathology education and research. Plant Protection Science **45**: 125–139.
- MATTA A. (1980): Defenses triggered by previous diverse invaders. In: HORSFALL J.G., BOWLING E.B. (eds): Plant Disease. An Advanced Treatise. Vol. V. How Plants Defend Themselves. Academic Press, New York and London: 345–361.
- PLESNÍK J. (2006): Životné jubileum Doc. Ing. Víta Bojňanského, Dr.Sc. Agriculture (Poľnohospodárstvo), **52**: 51–52.
- POKORNÝ R., LEBEDA A. (eds) (2009): Climate change and plant pathogens, pests and weeds. Plant Protection Science, **45** (Special Issue): S1–S66.
- SCIMAGO Journal and Country Rank. SCImago Research Group [on-line portal]. Available at <http://www.scimagojr.com> [Accessed 2014-01-20].
- SCIVERSE SCOPUS [on-line database]. Elsevier © 2013, Amsterdam. Accessible for authorised users at www.scopus.com [Accessed 2013-08-10].
- SKUHRAVÁ M. (1966): Prof. dr. Eduard Baudyš osmdesátiletý. Živa, **14**(4): 105.
- STEJSKAL V., AULICKÝ R. (2003): Scientometrical analysis of the journal Plant Protection Science in 1950–2002. Plant Protection Science, **39**: 109–115.
- ŠUBÍKOVÁ V. (2001): On the anniversary of Assoc. Prof. Ing. Vít Bojňanský, DSc. Plant Protection Science, **37**: 81–82.
- TÁBORSKÝ V., POLÁK J., LEBEDA A., KŮDELA V. (eds) (2002a): Disease resistance in plant pathology, 1st part. Proceedings 6th Conference EFPP 2002, Prague, Czech Republic, 8–14 September 2002. Plant Protection Science, **38** (Special Issue 1): 1–248.
- TÁBORSKÝ V., POLÁK J., LEBEDA A., KŮDELA V. (eds) (2002b): Disease resistance in plant pathology, 2nd part – Poster presentation. Proceedings 6th Conference EFPP 2002, Prague, Czech Republic, 8–14 September 2002. Plant Protection Science, **38** (Special Issue 2): 249–722.
- Ulrichs Web. Global Serial Directory [on-line database]. Ulrichsweb.comTM, Copyright © 2014 ProQuest LLC. Accessible for authorised users at <http://ulrichsweb.serialsolutions.com> [Accessed 2014-02-03].
- VEVERKA K. (2005): Prof. Ing. Zdeněk Čača, DrSc. (1927–1995). Plant Protection Science, **41**: 94.
- ZBUZEK B. (2007): Za zásluhy o rozvoj rostlinolékařství. Rostlinolékař, **18**(4): 36–37.

Received for publication April 3, 2014
Accepted after corrections April 24, 2014

Corresponding author:

Prof. Ing. ALEŠ LEBEDA, DrSc., Palackého univerzita v Olomouci, Přírodovědecká fakulta, Katedra botaniky, Šlechtitelů 11, 783 71 Olomouc-Holice, Česká republika; E-mail: ales.lebeda@upol.cz
