Central Statistical Office of Poland
www.stat.gov.pl

State Plant Health and Seed Inspection Service
www.piorin.gov.pl

Plant Protection Institute, Sośnicowice Branch
www.ior.gliwice.pl

The Plant Protection Products usage statistics in Poland

The project title:

Pesticide indicators

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The 1st Workshop on Pesticide Indicators

Vilnius, 2-3 April 2007

GENERAL DATA 2005

Number of farms with agricultural activity 2476,5 thous.,

of which > 1 ha 1708,1 thous.

Area of agricultural land in farms' use 15320,3 thous. ha,

of which > 1 ha 15000,6 thous. ha.

Average farm > 1 ha – 8,78 ha.

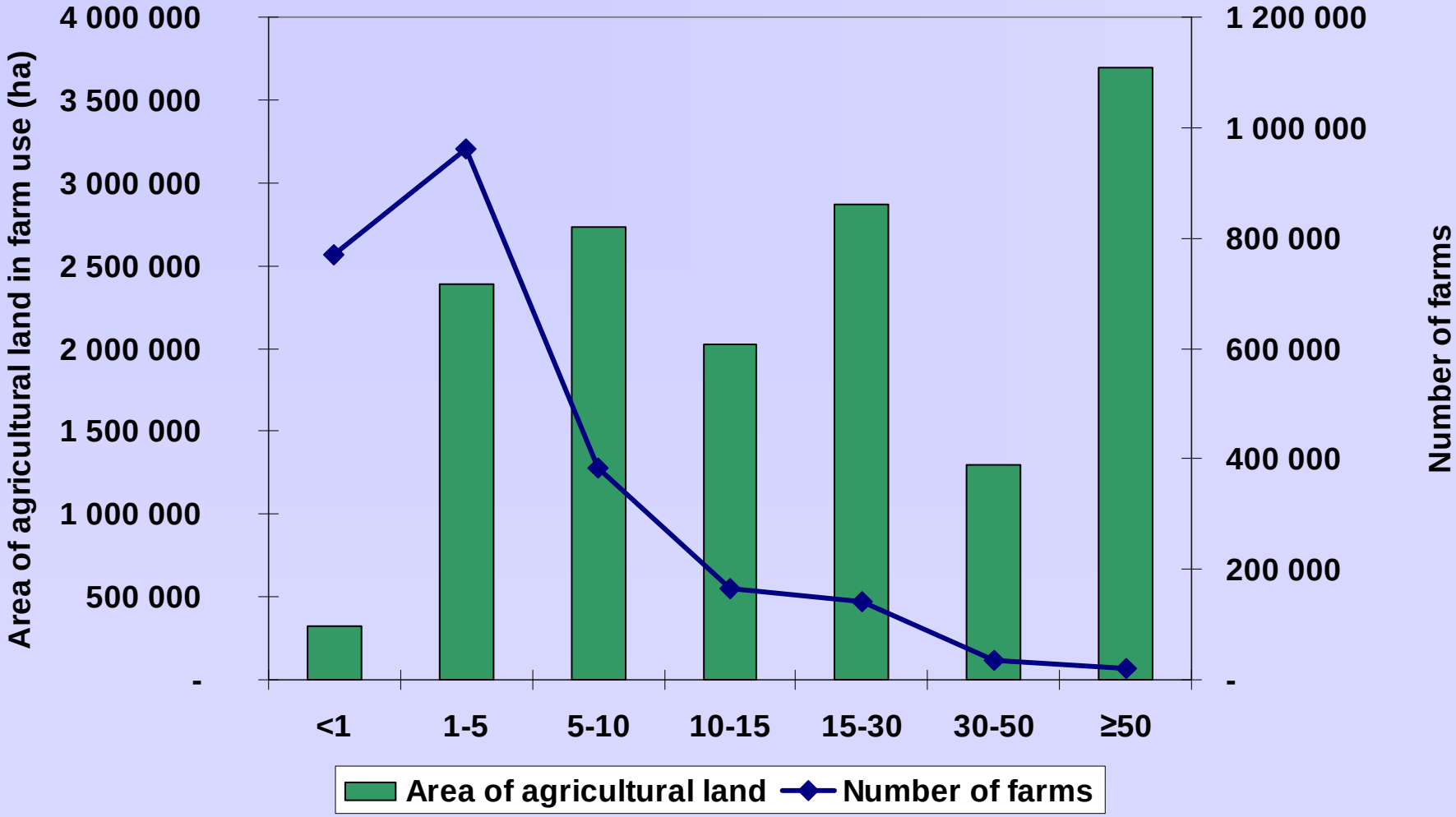
Source: CSO

NUMBER OF FARMS BY FARM SIZE 2005

Farm size (ha)	Number of farms (thous.)	%
< 1.0	768,4	31,0
1.0 - 5.0	961,6	38,8
5.1 - 15.0	549,8	22,2
15.1 - 50.0	175,5	7,1
> 50.0	21,2	0,9
In total	2476,5	100,0

Source: CSO

NUMBER OF FARMS AND AREA OF AGRICULTURAL LAND IN FARM USE BY THE FARM SIZE GROUPS



SOWN AREA 2005-2006

Crops	2005		2006	
	Sown area thous. ha	%	Sown area thous. ha	%
cereals	8329	74,4	8388	73,2
of which wheat	2218	x	2176	x
pulses edible	33	0,3	38	0,3
potatoes	588	5,3	597	5,2
industrial	857	7,7	908	7,9
feed	968	8,6	1116	9,7
other crops	418	3,7	418	3,7
Total area	**11193**	**100,0**	**11465**	**100,0**

Source: CSO

The system has been elaborated by State Plant Health and Seed Inspection Service, Main Inspectorate and introduced in 2002.

BASIC DOCUMENT

Guidelines for the collection of pesticide usage statistics within agriculture and horticulture elaborated by Miles Thomas, Central Science Lab., York, U.K. OECD – 1999.

BASIC DOCUMENT in Poland

Guidelines for collection statistical data on pesticide usage in Poland elaborated by Main Inspector of State Plant Health and Seed Inspection Service 2001

LEGAL FRAMEWORK

PLANT PROTECTION ACT issued 18.12.2003

Art. 71. obligation for farmers of registration all plant protection action and keeping the records for 2 years.
Obligation to record: crops treated, acreage application dates, pesticides names, doses, reasons for treatment.

Art. 80. Pos. 7. Duty for State Plant Health and Seed Inspection Service for monitoring of PPP use.

SYSTEM OBJECTIVES

- **supervision of the appropriate use of pesticides,**
- **determination of the right policies for new pesticide registration and verification of pesticides that are already on the market,**
- **appropriate planning of monitoring for pesticide residues in foodstuff,**
- **prevention and limitation of harmful impacts of pesticide use on humans, animals and the natural environment by providing information for new legal regulations,**

SYSTEM OBJECTIVES (continued)

- **support for creating regional strategies concerning pesticide use,**
- **development of factors of impact on the natural environment,**
- **monitoring of the process of permeation of pesticides into the ground water,**
- **obtaining of the data comparable with information from the other European Union Countries or OECD member states.**

METHODS OF DATA COLLECTION

Personal visits in the farms of agricultural producers

- ➢type of crop
- ➢crop area
- ➢treatment periods
- ➢pesticide names
- ➢pesticide doses
- ➢area treated
- ➢reasons for treatment

Appendix No. 1

Reference No.:**.....** ***....., date....., 2005***

PESTICIDE USAGE SURVEY

VOIVODSHIP: .....

COUNTY: .....

AREA:

❑ **1.0 – 5.0 ha** ❑ **5.1 – 15.0 ha** ❑ **15.1 – 50.0 ha** ❑ **over 50.1 ha**

FARM ADDRESS:

CROP:.....

AREA OF CROP WITHIN THE FARM: ha

TREATED AREA: ha

TYPE OF TREATMENT: chemical/ integrated*

SOURCE OF DATA: treatment record/ oral information/ other*

No.	Pesticide Name	dose [l/kg per ha]	Treatment period	Area Treated [ha]	Reason for Treatment

.....

signature of the person filling out the survey

❑ check one
* cross out ones that do not apply

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SURVEY PERIOD

Data consider all pesticide applications made to the land on which the crop is grown over a 12 month period.

Schematic representation of survey period for autumn-drilled crops

August	September	October	October-December	January-July	August	September
	←		SURVEY PERIOD		→	
Harvest of previous crop	Pre-drilling clean-up	Drilling of survey crop	Autumn pesticide use	Spring pesticide use	Harvest of survey crop	Pre-drilling clen-up

SAMPLE SELECTION

The division of the farms on size groups allows on proportional calculation in each group number of the farms

Determination of field groups for the entire state and each region

Farm division into the farm size group (2005)

Group	Farm size (ha)	Number of farms
I	1.0 - 5.0	961606
II	5.1 - 15.0	549806
III	15.1 - 50.0	175512
IV	> 50	21175
In total		1708099

Source: CSO

SCHEDULE OF SURVEYING SCOPE AND FREQUENCY

Year	cereals	cereal mixes	leguminous and papilionaceous, smell seed	potatoes	sugar beets	oil plants	fibre plants	fodder beets	corn	vegetables	strawberies	fruit trees and shrubs
2002				X								
2003	X 2				X							X 1
2004			X			X				X 2	X	
2005	X 3						X		X			X 2
2006		X		X				X		X 1		
2007	X 2				X							X 1
2008			X			X				X 2	X	
2009	X 3						X		X			X 2
2010		X		X				X		X 1		

Cereals

X 2 – spring and winter wheat, rye

X 3 – spring and winter barley, oats

Vegetables:
X 1 – cabbage, onion, carrot, beets
X 2 – cucumbers, tomatoes, peppers, lettuce (outdoor and protected)

Orchard crops:
X 1 – apple, plum
X 2 – cherry, currant

Vilnius, 2-3 April 2007

SAMPLE SELECTION AND SPECIFICATION

The number of visited farms is related with the size

of SAMPLE counted separately for each crop.

The size of statistical sample for each crop is not centrally specified for whole country, but on the level of regional inspectorates with using uniform way of counting in the accordance with elaborated methodology

The size of examined sample for relevant crop is not the same for every of sixteen country regions (voivodships), but is related with many factors, among others with structure of farms in the region and importance of examined crop in the structure of sowing.

REGISTERS

- The Statistical Register of Agriculture Holdings administrated by Central Statistical Office of Poland
- The Register administrated by State Plant Health and Seed Inspection Service

PROCEDURES FOR SELECTING A FARM

- **Number of farms within defined farm size is determined.**
- **A random list of villages selected for survey visits within a county is created.**
- **Farmers are surveyed according to the list.**
- **All farms in a village must be surveyed.**
- **Upon the arrival on a farm, check the farm size group and the crop against your data and mark it on the survey accordingly.**
- **Surveying according to this procedure should be conducted until the number of surveyed farms within the particular farm size group reaches the required number.**
- **At the end of the study, when each farm size group is incomplete by a single farm, surveys should be conducted directly with farmers that meet the farm size and crop criteria.**

DIFFICULTIES

- Large number of small agriculture holdings (area of 1 to 5 ha)
- Lack of separate (autonomous, dedicated) informatics system (use of common inspection system with high level of generality what requires additional work with data input)
- Survey of plant protection products use is one of many duties (additional workload for inspectors)
- Difficulties with obtaining credible data (surveyor is simultaneously the controller of correct use of plant protection products)
- Difficulties with obtaining representative sample

RESULTS 2002

potatoes

➢ number of surveys	7419
➢ surveyed area (ha)	22796,85
➢ mean usage of a.s.(kg/ha)	3,52
including:	
– fungicides	2,94
herbicides	0,46
insecticides	0,10
plant growth regulators	0,00
others	0,02
➢ the total potato crop area (ha)	957459,10

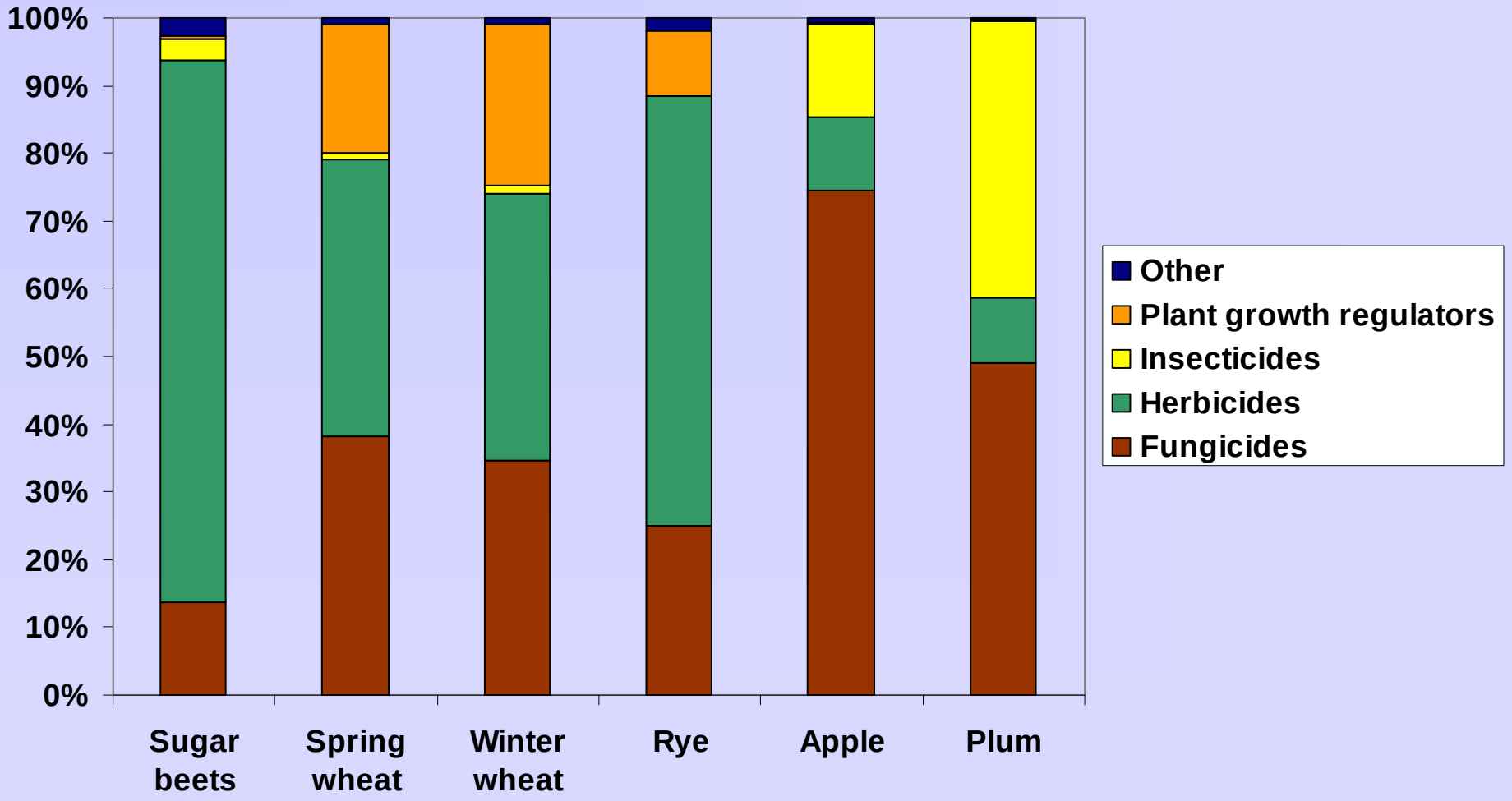
RESULTS 2003

Number of surveys and surveyed area (2003)

Crop	Number of surveys	Surveyed area	Mean usage of a.s. in [kg/ha]	Includes				
				Fungicides	Herbicides	Insecticides	Plant growth regulators	Other
Sugar beets	1591	35143,72	2,57	0,35	2,06	0,08	0,01	0,07
Spring wheat	2784	100177,62	1,10	0,42	0,45	0,01	0,21	0,01
Winter wheat	2007	32768,62	1,85	0,64	0,73	0,02	0,44	0,02
Rye	2191	42994,52	0,52	0,13	0,33	0,00	0,05	0,01
Apple	1054	6348,59	9,28	6,91	1,01	1,27	0,03	0,06
Plum	692	784,75	4,00	1,96	0,39	1,63	0,01	0,01

Source: State Plant Health and Seed Inspection Service

MEAN USAGE OF A. S. [in kg/ha] 2003

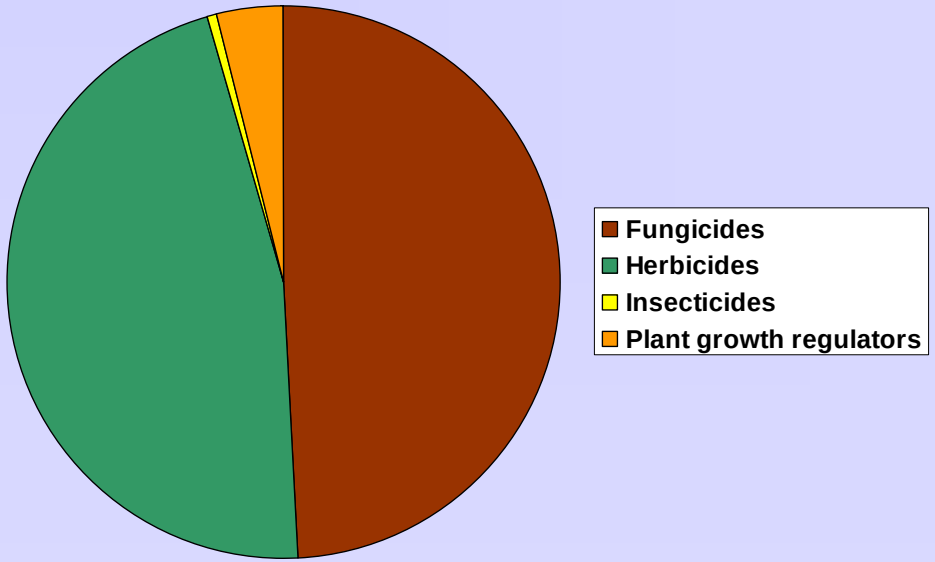


PUS PROJECT

(2003)

Crop	Number of surveys	Surveyed area	Mean usage of a.s. in [kg/ha]	Includes				
				Fungicides	Herbicides	Insecticides	Plant growth regulators	Other
Winter wheat	100	526,35	2,14	0,78	0,73	0,01	0,06	0,00

WINTER WHEAT - MEAN USAGE OF A. S. [in kg/ha] 2003



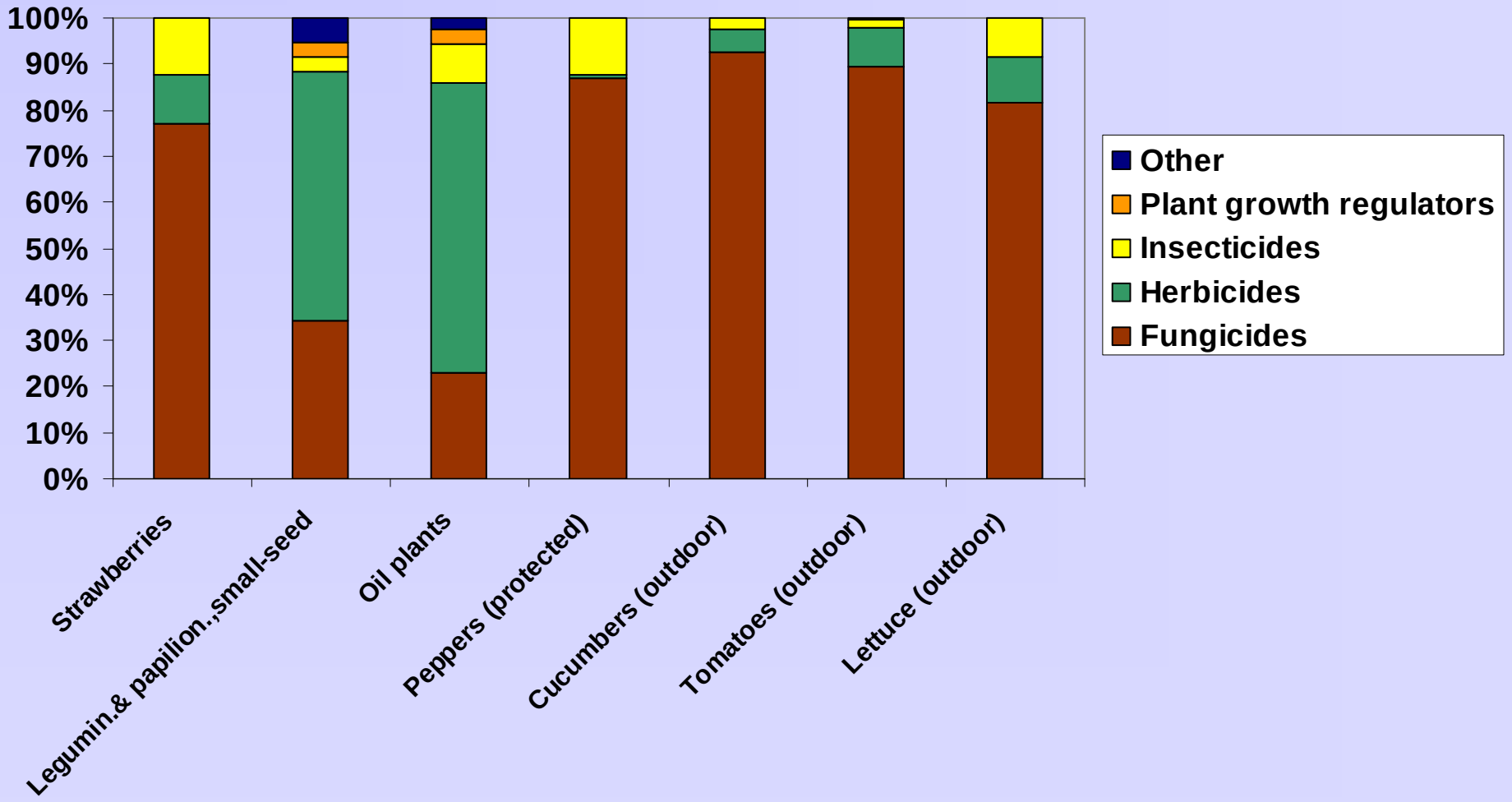
RESULTS 2004

Number of surveys and surveyed area (2004)

Crop	Number of surveys	Surveyed area	Mean usage of a.s. in [kg/ha]	Includes				
				Fungicides	Herbicides	Insecticides	Plant growth regulators	Other
Strawberries	1271	2985,62	6,59	5,08	0,70	0,80	0,00	0,01
Leguminous and papilionaceous small-seed	1206	7276,86	0,93	0,32	0,50	0,03	0,03	0,05
Oil plants	2050	59158,85	2,29	0,53	1,44	0,19	0,07	0,06
Peppers (protected)	189	16,67	2,45	2,13	0,02	0,30	0,00	0,00
Cucumbers (outdoor)	748	487,86	5,80	5,37	0,28	0,14	0,00	0,01
Tomatoes (outdoor)	331	416,94	8,70	7,78	0,73	0,16	0,03	0,00
Lettuce (outdoor)	148	35,30	1,63	1,33	0,16	0,14	0,00	0,00

Source: State Plant Health and Seed Inspection Service

MEAN USAGE OF A. S. [in kg/ha] 2004



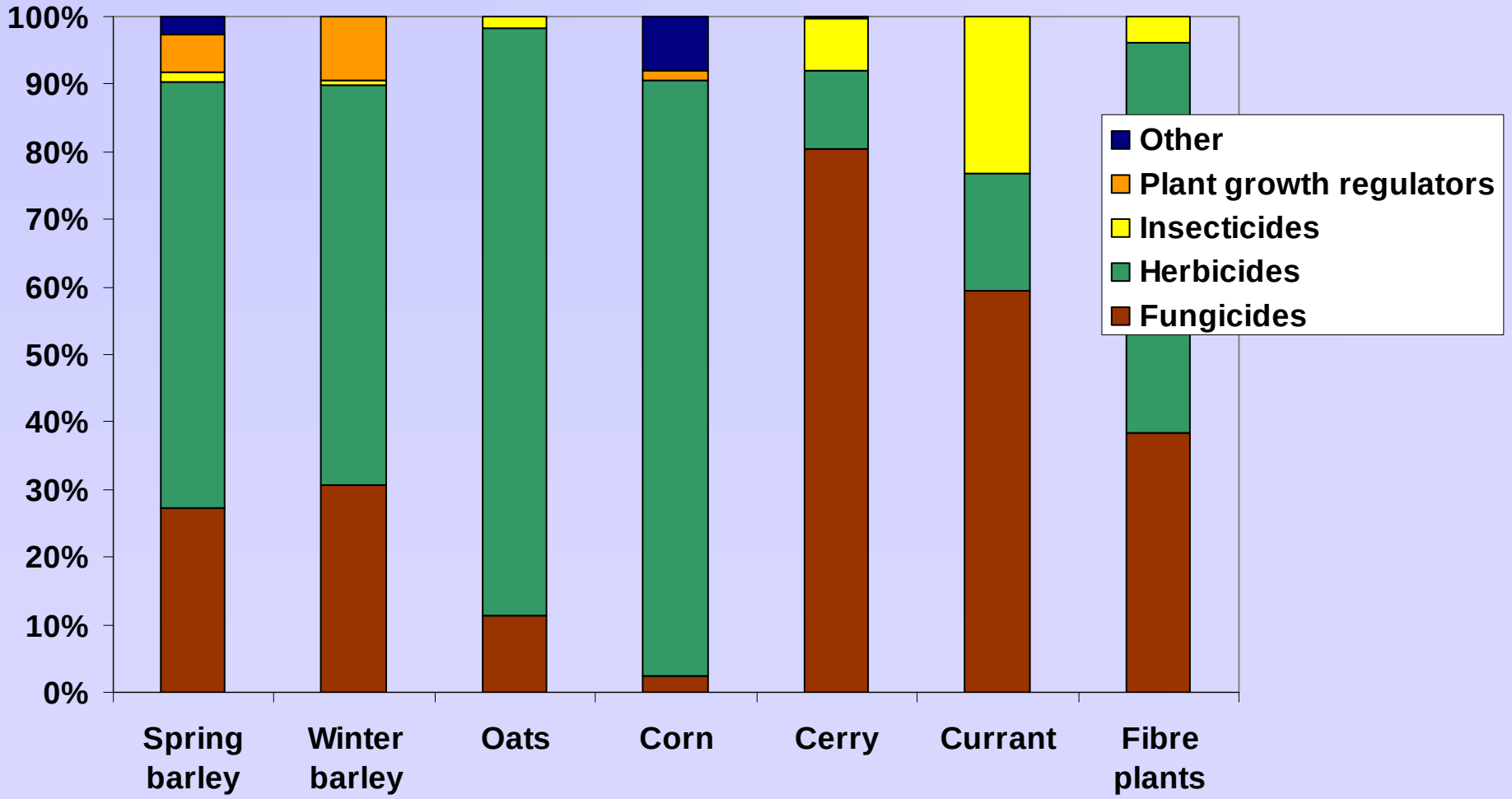
RESULTS 2005

Number of surveys and surveyed area (2005)

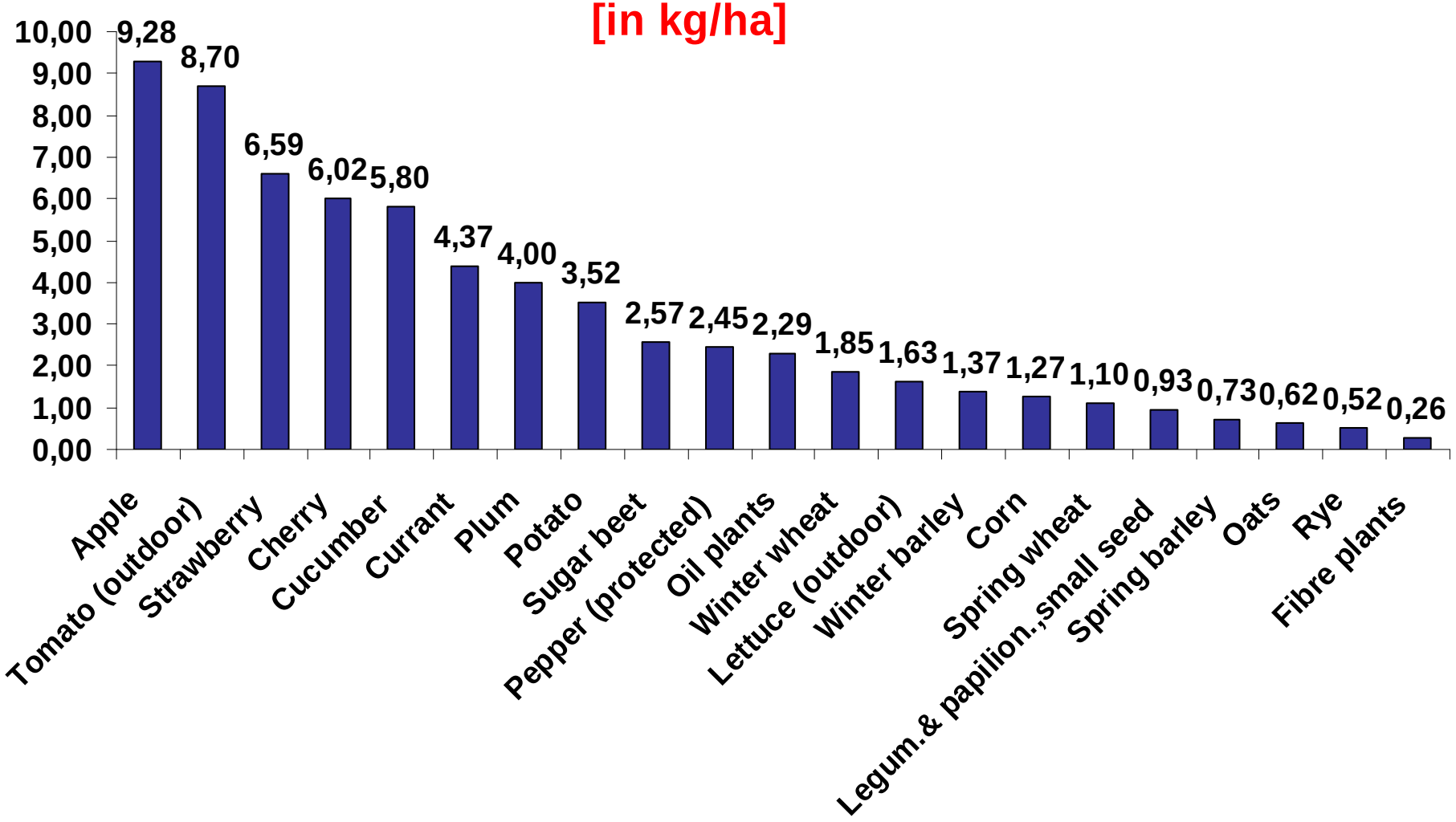
Crop	Number of surveys	Surveyed area	Mean usage of a.s. in [kg/ha]	Includes				
				Fungicides	Herbicides	Insecticides	Plant growth regulators	Other
Spring barley	1943	25219,60	0,73	0,20	0,46	0,01	0,04	0,02
Winter barley	1056	10675,20	1,37	0,42	0,81	0,01	0,13	0,00
Oats	1564	14269,90	0,62	0,07	0,54	0,01	0,00	0,00
Corn	1518	36200,10	1,27	0,03	1,12	0,00	0,02	0,10
Cherry	492	1097,20	6,02	4,84	0,70	0,47	0,00	0,01
Currant	617	1870,20	4,37	2,60	0,76	1,01	0,00	0,00
Fibre plants	103	731,20	0,26	0,10	0,15	0,01	0,00	0,00

Source: State Plant Health and Seed Inspection Service

MEAN USAGE OF A. S. [in kg/ha] 2005



MEAN USAGE A. S. FOR THE CROPS SURVEYED [in kg/ha]



SUMMARY CYCLE 2002-2005

- 21 crops
- 30974 surveys
- 401456 ha surveyed area
- 1,86 a.s. (kg/ha)