

## NATIONWIDE STRUCTURE OF HONEY FLOWS IN POLAND IN THE YEARS 1995-2003

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### S u m m a r y

In the years 1995-2003 average gross hive weight gain was 39.7 kg/colony, net weight gain was 31.7 kg/colony and losses accounted for 20.1% of gross weight additions. In the period of study there was a tendency within the seasonal nectar flow distribution for the particular flows to shift towards spring. The gross weight gain in May accounted for 42.3% of the annual increment. June's contribution was 37% rising by ca. 3% on those of previous years, and July's was considerably declined accounting for 20.3% of the gross annual weight addition. August's increment was unchanged from previous years and continued to account for as little as 2.5% of the annual weight addition.

**Keywords:** nectar flows, scale hive, honeybee colony.

### INTRODUCTION

Honey is of principal importance in beekeeping production. Factors that contribute to good honey harvests are the abundance of nectar flow and the productive potential of honeybee colonies. This is why it is so important to gear up the colony to a particular flow. To this end it is indispensable to know the dates on which the flow occurs so that the development of bee colonies can be adjusted accordingly. Without knowing it the peak flow fails to coincide with the peak readiness of the colony to harvest nectar. The result is commercial honey being lost to meeting the needs of the colony (Gromisz et al. 1978). The basis for rational apiary management is thus the understanding of the occurrence and intensity of nectar flows to be utilized as nectar harvests. For practical purposes the amount of nectar harvest can be measured by regular weighing of beehives. Weight-based assessment of nectar harvests has been done in Poland since 1950 and it is used for comprehensive analysis of

Poland's beekeeping status (Bornus, Gromisz 1964; Gromisz, Kochańska 1979; Gromisz, Kośka 1998). The objective of this study is to describe the utilization of nectar flows during the beekeeping season as it occurred across Poland in the years 1995-2003.

### METHODS

The description of nectar flows was based on the records from beehive weight monitoring points in the years 1995-2003. The study covered 273 notes on changes in the weight of monitored beehives received between May 1 and August 31 of each beekeeping seasons. The distribution of monitoring points was at random because the reports are submitted on voluntary basis. The highest number of reports was submitted by beekeepers from the voivodeships: Śląskie, Kujawsko-Pomorskie, Lubelskie and Lubuskie. The voivodeships: Wielkopolskie, Mazowieckie, Małopolskie and Pomorskie were poorly represented and no reports were received from the voivodeships: Warmińsko-Mazurskie, Dolnośląskie and Opolskie.

The records were submitted to the Apiculture Division in Puławy on a specially prepared beehive weight monitoring sheet. The data recorded in the sheet registered diurnal changes in the weight of a strong beehive with bees set on a hive scale. The changes are influenced by various factors such as nectar and pollen inflow to the hive, consumption of stores by bees, changes in the number of brood and bees, adding and removing of frames etc. In a short time the changes of honey stores become disproportionately larger than changes in weight of any other kind. So it was generally accepted that diurnal changes in the weight of the scale hive should be regarded as being the result of storing and using honey by the bees. An increment of beehive weight is indicative of fresh nectar harvest whilst a decrease in weight indicates a day with no nectar harvest either because of the absence of nectar flow or because of adverse weather preventing the bees from working in the pastures.

**The data provided the basis for the following calculations:**

1. gross gain of hive weight - sum of diurnal hive weight increments over the beekeeping season broken down into decades. In our studies gross weight gain defines the amount of nectar harvest or the part of the nectar crop brought into the hive,
2. loss of hive weight - sum of diurnal losses of hive weight,
3. net gain - obtained by deducting from the gross gain the sum of diurnal losses over the beekeeping season. Net gain reflects the extent to which the nectar crop brought into the hive was utilized as honey.

It allows the estimation of the crop of honey. In this study, the method to calculate the amount of commercial honey (z)

was based on net weight gain (x) according to the Swiss data (Gromisz 1976):

$$z = x - 5$$

when x is more than 5 kg and not more than 11 kg and

$$z = 0.864x - 3.501$$

when x is more than 11 kg

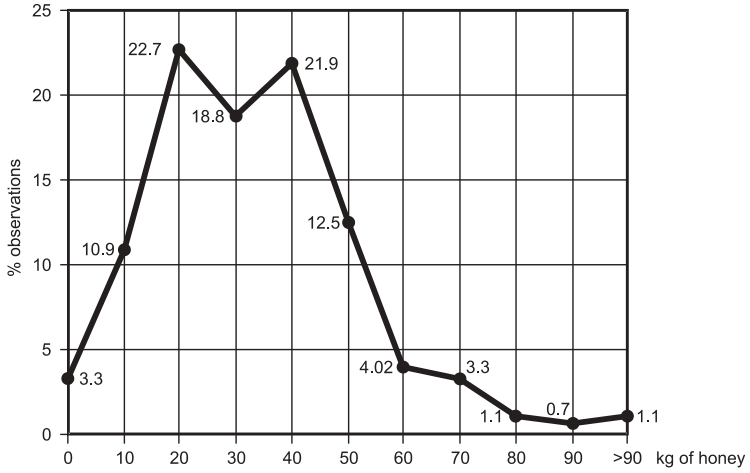
Records submitted to the Apiculture Division were organized according to the administrative division of the country. Weight gains were analyzed for sites and then for voivodeships and years. The distribution of weight gains over months of a beekeeping season was also determined. The analysis of the data consisted mainly in calculating voivodeship and year means as well as combined 8-year means.

## RESULTS

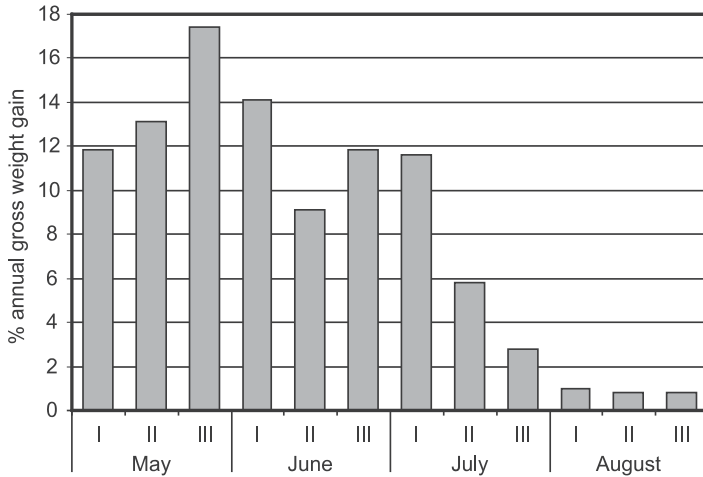
### General description of weight gains

The average gross weight gain based on the 273 nectar flow reports received over the years 1995 - 2003 was 39.7 kg/colony. The lowest gain was 3.0 kg/colony (Kujawsko-Pomorskie 2003) and the highest 161.6 kg/colony (Łódzkie 1995). What is conspicuous about the data listed in Table 1 is that it is only in the years 1995, 1999 and 2003 that the annual gross weight gain was higher than the study's average. In the majority of apiaries, accounting for 78% of their total number, the gross gain did not exceed 50 kg/colony. Most of the time, in as many as 64% of cases, the annual additions to scale hive weight came within 20-50 kg (Graph 1).

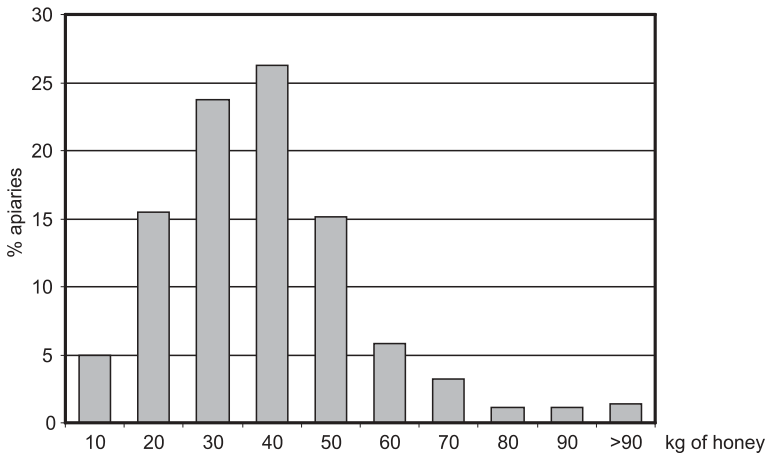
The western voivodeships were superior with respect to nectar harvest. Gross weight gain was 50.2 kg for Zachodnio-Pomorskie, 54.2 for Lubuskie and 54.6 kg for Małopolskie (Table 2) surpassing the overall average by 26.5%, 36.5% and 37.5%, respectively. In the remaining voivodeships weight additions departed in minus from Poland's average. The worst



**Graph 1.** Scale hive weight gain variation curves for Poland in the years 1995-2003



**Graph 2.** Contribution of individual decades of the beekeeping season to the annual gross hive weight gain in the years 1995-2003



**Graph 3.** Honey crop from the scale hive in the years 1995-2003

Table 1

Annual changes in the weight of scale hive over the years 1995-2003  
and the value of the cumulative gross weight gain in individual months

Year	n	Gross weight gain (kg)	Weight loss (kg)	Net weight gain (kg)	% net gain of gross gain	% monthly gross gains of annual gain:				Estimated honey crop
						May	June	July	August	
1995	45	51.1 c (6.6-161.6)	7.9 ab (0.0-23.3)	43.2 c (2.7-159.3)	84.5%	44.8	24.6	29.3	1.3	33.8
1996	37	32.9 a (9.8-67.7)	7.6 ab (0.5-22.0)	25.3 a (1.0-59.8)	76.9%	25.8	44.1	29.2	1.2	18.4
1997	35	38.6 ab (9.6-79.4)	7.4 a (0.0-15.8)	31.2 ab (2.1-77.9)	80.8%	19.2	51.5	25.6	3.6	23.5
1998	35	38.9 ab (10.7-99.5)	9.5 b (0.0-17.6)	29.4 ab (-2.3-95.0)	75.4%	51.9	36.2	10.5	1.3	22.2
1999	30	40.1 abc (4.7-75.4)	7.8 ab (0.2-15.1)	32.3 abc (-10.4-70.1)	80.5%	49.4	31.9	17.2	1.7	24.8
2000	27	35.2 ab (9.8-76.0)	8.4 ab (0.0-22.7)	26.8 a (-2.8-70.6)	76.1%	49.4	38.9	7.9	3.9	19.8
2001	22	36.9 ab (6.9-74.5)	9.1 b (0.0-29.6)	27.8 a (-10.3-65.7)	75.3%	50.1	26.5	21.1	2.2	21.4
2002	21	31.9 a (11.2-67.2)	8.2 ab (0.0-17.5)	23.8 a (5.7-63.8)	74.6%	60.5	26.3	7.2	5.9	16.9
2003	21	46.1 b (3.0-85.7)	5.5 a (0.0-19.1)	40.6 bc (0.7-85.7)	88.1%	42.3	38.4	15.6	3.7	31.7
Total	273	39.7 (3.0-161.6)	8.0 (0.0-29.6)	31.7 (-10.4-159.3)	79.8%	42.3	35.0	20.2	2.5	24.0

Table 2

The seasonal distribution of nectar flows in individual voivodeships over the years 1995-2000

Voivodeship	n	Gross gain weight (kg)	Weight loss (kg)	Net weight gain (kg)	% net gain of gross gain	% monthly gross gains of annual gain:				Estimated honey crop
						May	June	July	August	
Mazowieckie	12	32.7	5.4	27.3	83.50	39.4	38.4	21	1.2	20.2
Podkarpackie	24	34.5	14.2	20.2	58.50	32.1	35.6	23.1	9.2	15.4
Wielkopolskie	15	26.9	4.9	22	81.80	48.3	27.5	22.7	1.5	15.6
Łódzkie	22	42.4	8.4	34.1	80.40	36.5	38.7	22.4	2.4	26.1
Kujawsko-Pomorskie	37	38.2	6.2	32.1	84.00	49.2	32.7	18.1	0	24.2
Śląskie	45	38.6	9.4	29.2	75.60	43.3	30.6	22	4.1	21.9
Pomorskie	6	13.9	7.3	6.5	46.80	27.3	22.3	39.6	10.8	2.7
Lubelskie	35	34.7	9.2	25.5	73.50	41.6	40.3	17.6	0.5	18.4
Małopolskie	10	54.6	5.3	49.3	90.30	39	32.1	27.5	1.4	39.2
Zachodnio-Pomorskie	20	50.2	8.6	41.6	82.90	51.7	31.3	16.7	0.3	32.3
Podlaskie	13	34.3	7.9	26.4	76.90	48.1	34.4	16.9	0.6	19.3
Lubuskie	33	54.2	5.1	49.1	90.50	39.6	41.3	16.4	2.7	38.9
Świętokrzyskie	1	45.8	3.2	42.6	93.00	24.5	13.1	59.4	3	33.3
Total	273	39.7	8	31.7	79.80	42.3	35	20.2	2.5	24

performer in that respect was Pomorskie (gross weight gain of 13.9 kg), a departure in minus by 64.9% from the national average.

### **Quantitative seasonal pattern of weight gains**

In the years 1995-2003 there was a substantial increase over the previous years of the May gross weight gain. Over that period May's weight addition accounted for 42.3% of the total annual gross weight gain. In June, weight additions accounted for 35% of the cumulative annual gain, an increase of ca. 3% on the previous years. Oddly enough, July's weight gain declined considerably and accounted for 20.2% of the annual weight gain. The percent contribution of August's weight addition remained unchanged and was 2.5% of the total annual gain (Table 1).

#### ***May honey harvest***

Weather and progress of vegetation are the main factors influencing bee foraging early in the spring. In the majority of apiaries the first fresh honey appears already in the first decade of May. Nationwide, at that time the bees managed to add 11.8% of the total gross weight gain (Table 3, Graph 2), the percent addition was 13% in the second decade, and 17%, the highest, in the third decade. By the end of the month the cumulated addition accounted for 42% of the annual total which indicates that the peak nectar harvest intensity occurs in the month of May. Weight gains approximating the average were shown by apiaries across most of the country (Table 2). The contribution of May's nectar harvest to the season's total was the highest in the majority of voivodeships, with higher-than-average additions reported from Zachodnio-Pomorskie, Kujawsko-Pomorskie, Wielkopolskie, Podlaskie and Śląskie (Table 2). In the former four voivodeships the May's addition accounted for ca. half of the annual gross weight gain. In those voivodeships vigorous honey

harvest started as soon as the beginning of May. In the remaining voivodeships May's weight additions were also very high. What varied was their intensity. In central Poland, Mazowieckie and Łódzkie voivodeships, massive hive weight increases took place in the third decade of May continued by the end of the first decade of June. The same was true of the Lubuskie voivodeship. In the remaining voivodeships gross weight gains were at a similar level.

#### ***June honey harvest***

In June average gross weight gains varied from ca. 13%, voivodeship of Świętokrzyskie to 41%, voivodeship of Lubuskie. By the end of that month in the majority of voivodeships gross weight additions accounted for over 70% of the year's total. In three voivodeships (Podkarpackie, Łódzkie, Lubuskie) June's weight gains were greater than in May (Table 2). The exception was Świętokrzyskie and Pomorskie where beekeepers could count on substantial late-season nectar crops such as heather or wood honeydew. Percent contributions to weight gain were the highest in the first decade of June although in some regions the weight gains of the third decade accounted for over 10% of the year's total (Table 3).

#### ***July and August honey harvest***

In July daily additions to hive weight occurred all over the country, especially towards the end of that month although not in all localities. The extent of August's harvests was much more limited in this study but, none-the-less, weight gains were recorded in many localities. Over the years 1995 to 2003, of the total gross weight gain 20.2% was contributed in July, and only 2.5% in August. In July weight additions were still meaningful, especially in the voivodeships: Pomorskie, Małopolskie and Świętokrzyskie. In those voivodeships the bees brought in from

Table 3

Contributions of individual voivodeships to the overall annual gross weight gain over the decades of the beekeeping season (%)

Voivodeship	May			June			July			August		
	I	II	III	I	II	III	I	II	III	I	II	III
Mazowieckie	8.9	6.4	24.2	22.3	7.6	8.6	10.4	11.9	0.6	0.3	0.6	0.3
Podkarpackie	13.3	7.2	11.3	14.8	7.2	13.6	12.0	5.2	6.1	4.6	2.0	2.6
Wielkopolskie	17.8	16.7	13.8	5.9	7.4	13.8	12.9	6.7	3.0	0.7	0.0	0.7
Łódzkie	5.7	7.3	23.6	14.9	11.8	11.8	15.7	5.0	1.9	0.2	0.5	1.7
Kujawsko-Pomorskie	13.1	18.1	18.1	14.7	7.3	10.7	13.0	3.4	1.6	0.0	0.0	0.0
Śląskie	13.7	13.5	16.1	11.1	7.5	11.9	10.7	7.8	3.6	1.0	1.6	1.8
Pomorskie	5.0	8.6	14.4	8.6	5.8	7.9	10.7	16.5	12.9	5.8	5.0	0.7
Lubelskie	13.8	14.7	13.0	18.2	11.0	11.2	13.1	3.7	0.9	0.3	0.0	0.0
Małopolskie	14.7	12.1	12.1	14.7	7.7	9.7	14.0	7.0	6.6	0.4	0.4	0.7
Zachodnio-Pomorskie	12.0	17.5	22.3	9.4	9.8	12.2	10.5	5.6	1.2	0.2	0.2	0.0
Podlaskie	13.4	17.8	16.9	20.4	7.6	6.4	7.3	5.2	4.4	0.6	0.0	0.0
Lubuskie	8.7	11.6	19.4	14.9	11.4	14.9	8.8	5.4	2.4	1.5	1.1	0.2
Świętokrzyskie	8.7	6.6	9.2	3.9	6.3	2.8	8.3	25.8	25.3	3.1	0.0	0.0
Total	11.8	13.1	17.4	14.1	9.1	11.8	11.6	5.8	2.8	1.0	0.8	0.8

27% to as much as nearly 60% of total year's harvest (Table 2). In the first two decades of July, in particular, the honey harvests were relatively substantial. The average decade's weight gain in that period was at that time comparable to that in the first decade of May. It was followed by an abrupt decline down to ca. 1.0 kg in August which accounted for only 0.8% of the nationwide annual total (Table 3, Graph 2).

### Level and utilization of nectar crop

A part of the nectar crop provided by the plants is brought in by the bees as nectar harvest which is described in terms of gross weight increase of a hive. However, nectar supplies stored in the hive diminish as they are made into honey and consumed by the honeybee colony. Supplies of fresh nectar oftentimes are not enough to make up for such expenditures either because the source of the flow has become exhausted or because of inclement weather. In such a case the scale hive shows weight decreases. A mutual relationship of gross weight increase vs. the sum of daily decreases provides the beekeeper with the clues as to the utilization rate of the honey harvest. The greater the surplus of weight gains over weight decreases the greater crop of honey is to be expected and the utilization of the nectar crop is improved.

The gross hive weight gain over the period 1995-2003 was, on average, greater than the hive weight loss by a factor of 5 (Table 4). The balance sheet of honey crop in the hive turned out to be an advantage to the beekeepers. In the study period there were both years better than average e.g. the year 1995 (factor of 6.5), 2003 (factor of 8.3), and worse than average -the year 2002 (factor of 3.9), 2001 and 1998 (factor of 4.1) and 2000 (factor of 4.2).

The quantitative ratio of gross gains to losses varied across the country. The variation was from 1.9 and 2.4 in the

voivodeships: Pomorskie and Podkarpackie respectively, to 10.3, 10.7 and 14.3 in the voivodeships: Małopolskie, Lubuskie and Świętokrzyskie (Table 5).

The situation was influenced by the rate of both gains and losses. In the study period the losses accounted for 20.1% of the gross gains but in some years the losses were much in excess of the long-term average. E.g. in 2002 they accounted for 25.6% of gross gains (Table 4) or, in other words, 1/4 of the nectar harvest was used for internal expenditures. In some years of the study period, once the colony's needs were satisfied, only small supplies remained in the nest. However, there were also apiaries in which the losses surpassed the gains. In the combined period of May and June the hive weight decreases accounted for 31.9% of the average weight gain over that period. The value of that indicator was 32.0% in July and 66.4% in August (Table 5). It shows that the utilization rate of the nectar harvest by the bees dropped later in the season. Of the nectar brought in in July the amount used to meet the colony's internal needs nearly doubled compared to the combined nectar gains of May and June. It means that the nectar harvests being equal the beekeeper gets a smaller crop of commercial honey in July and August than in May and June. It becomes particularly conspicuous in August. The percent contribution of the gross nectar gain in August to the year's total gain is usually very low and averaged 2.5% (from 1.2% w 1996 to 5.9 in 2003). However, in some voivodeships no honey gains were recorded in August or the gains reached 0.5% of the total gross gain at the most (Table 2).

### Estimated honey yields

Given the net gain of the hive weight the yield of honey can be estimated. According to the accepted estimation method the scale hive sites showing the net

Table 4

Gross weight gains vs. losses in the years 1995-2000

Study year	Quotiens: gains/losses	% losses of gross gains over months:				
		Entire season	May	June	July	August
1995	6.5	15.5	9.3	27.3	15.2	32.4
1996	4.3	23.1	23.1	14.3	32.2	111.5
1997	5.2	19.2	28.0	8.4	28.1	64.1
1998	4.1	24.5	13.4	20.7	77.6	149.7
1999	5.1	19.5	12.2	23.2	30.0	54.3
2000	4.2	24.0	11.6	23.4	83.5	63.2
2001	4.1	24.6	8.9	37.3	37.6	106.8
2002	3.9	25.6	9.9	35.7	99.6	51.1
2003	8.3	12.0	8.0	7.0	22.8	63.3
Total	5.0	20.1	12.5	19.4	32.0	66.4

Table 5

Gross weight gains vs. losses over voivodships in the years 1995-2003

Voivodship	Quotiens: gains/losses	% losses of gross gains over months:				
		Entire season	May	June	July	August
Mazowieckie	6.1	16.5	11.7	14.2	27.5	57.1
Podkarpackie	2.4	41.3	34.4	39.4	50.8	48.5
Wielkopolskie	5.5	18.1	7.5	24.3	29.2	82.3
Łódzkie	5.1	19.7	16.7	13.2	29.3	78.3
Kujawsko-Pomorskie	6.2	16.1	10.3	18.5	27.5	-
Śląskie	4.1	24.4	13.7	28.2	39.5	28.1
Pomorskie	1.9	52.9	48.0	76.7	28.4	107.9
Lubelskie	3.8	26.6	15.6	18.7	49.7	781.7
Małopolskie	10.3	9.7	7.9	13.3	8.1	11.4
Zachodnio-Pomorskie	5.8	17.2	7.4	22.3	29.9	402.9
Podlaskie	4.4	22.9	13.7	20.2	34.5	654.2
Lubuskie	10.7	9.3	5.5	7.9	22.1	20.4
Świętokrzyskie	14.3	7.0	12.5	0.0	4.4	42.9
Total	5.0	20.1	12.5	19.4	32.0	66.4

weight gain below 5 kg failed to yield any honey altogether. There were 14 such sites during the study which accounted for 5.1% of the total number of apiaries. The year 2001 was the worst in that respect, the proportion of zero honey yielders reaching 13.6%.

The average honey yield for the entire network of scale hive sites was estimated at 24.0 kg/colony (Tables 1 and 2). Estimated yields varied from apiary to apiary (from zero yields to as much as 134 kg/colony). The group of apiaries yielding from 20 to 30 kg/colony was, however, the most numerous (Graph 3).

Honey yields varied across the country (Table 2). The voivodeship averages were from 2.7 kg/colony (Pomorskie) to 39.2 kg/colony (Małopolskie).

## DISCUSSION

Changes in the abundance of nectar flow affect the opportunities of honeybee colonies to gather nectar. For practical purposes the amount of gathered nectar can be estimated by regular weighing of the hives. However, the number of hive weighing sites has been declining year in year out mainly due to the wear of hive weighing devices. Because of that comprehensive assessment of nectar flows cannot be carried out at the moment. This notwithstanding, the collected data allowed the presentation of the changes in hive weight at the monitored apiaries.

Over the period from 1995 to 2003 the average gain of hive weight was 37.9 kg/colony. This is an improvement on the previous years since in the period from 1974 to 1977 it was 26.9 kg and in the years 1986-1995 - 35.8 kg. It is also true of the net gain which was 31.7 kg/colony, only 14.25 kg/colony in the years 1950-1974, 18.5 kg in the year 1982 and 27.3 kg in the years 1986-1995 (Gromisz

1976; Przychodzeń 1984; Gromisz, Końska 1998).

In terms of the amount of gathered nectar apiaries in the west of the country were superior to those in the east although the distinction is somewhat blurry. It is corroborated by research in previous years (Gromisz, Kochańska 1979; Gromisz 1998). The variation is due to varied bee forage supplies as doubtlessly they affect the combined nectar harvest by bee colonies.

A nectar flow in the period during which big increases in hive weight occur, much in excess of those from other parts of the season, has come to be regarded as the main flow. In the seasons covered by the study it lasted from the beginning of May to mid-June. It has been for a number of years that a distinct shift of nectar flows towards the spring months has been observed. Initially, in the years 1950-1963 the observed tendencies for the main flow to occur earlier in the season were explained by a change in flow pattern brought about by recultivation of idle lands, decline of weeds and cultivation of rapeseed. In the recent years weather has had an impact, very warm May in particular. Consequently, there has been a steady increase of May's contribution to the total year's gain of hive weight. It was 31.2% in the years 1974-1977, 36.1% in the years 1975-1982 and 37% in the years 1986-1995. In the years 1995-2003 May's importance as a contributor to gross hive weight gain consolidated reaching 42.7%. The percent contribution of June's gross gain to the total gain increased slightly but July's share in the overall gross gain substantially decreased (down to 20.2%). With the high overall weight gain over the period 1995-2003 the magnitude of May's nectar harvest is of no trivial importance as it amounts to ca. 9 kg of commercial honey: 16.5 kg of gross weight gain in May minus 12% of the total weight losses

over the period equals 14.7 kg of net weight gain. Instead, in the period e.g. 1974 - 1977 (Gromisz, Kochańska 1979) May's nectar harvest allowed the yield 1.5 kg of commercial honey only - gross gain weight of 8.4 kg, hive weight losses of 22.1%. In the years 1986-1996 the May's yield was 6 kg - May's gross weight increase of 13.2 kg, weight losses of 17.6% (Gromisz 1998).

According to the study by Gromisz et al. (1978) honeybee colonies reach full productive capacity when the flow of commercial value is already over. However in June the strength and structure of colonies allow the utilization of the flow. There is no such certainty about May flows because they may surpass the production capacity of honeybee colonies and the commercial nature of those flows is often over-simplified as a mere good development-promoting harvest. Later in the season e.g. towards the end of June/beginning of July when the colonies reach the peak of their development (Gromisz 1978) nectar supply became short. In that period in many apiaries losses were higher than gains by several times (Table 5). At that time the colonies started using food provisions gathered in previous months because the flow of nectar to the hive was not large enough even to meet the current food needs of the colony. Thus the honey surplus for the beekeeper to use as a commercial crop went diminishing.

Therefore, it is necessary to steer the development of honeybee colonies so that it is harmonized with the prevailing nectar flow situation all the more as flow conditions vary substantially although within an area, e.g. voivodeship, they may be very similar.

## CONCLUSIONS

1. Early honey harvests make an important contribution to the crop of honey of the bee colony.
2. In the period covered by the study there was a significant shift of honey flows towards the earlier part of the season (May, June).
3. In-depth understanding of honey flows and their seasonal distribution by means of a well-developed network of scale hive stations is necessary to manage nectar flows properly.

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## STRUKTURA WZIĄTKÓW PSZCZELICH NA TERENIE POLSKI W LATACH 1995-2003

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### S t r e s z c z e n i e

Podstawą racjonalnego prowadzenia gospodarki pasiecznej jest znajomość występowania i nasilenia pożytku, który zostaje zrealizowany w postaci wziątku. Dla celów praktycznych wielkość wziątku można scharakteryzować poprzez regularne ważenie uli. Wagową ocenę wziątków nektarowych prowadzi się w Polsce już od 1950 roku i jest ona wykorzystywana do wszechstronnej analizy warunków naszego pszczelarstwa (Bornus, Gromisz 1964; Gromisz, Kochańska 1979; Gromisz, Kośka 1998). Celem tej pracy jest charakterystyka realizacji zasobów wziątku w okresie sezonu pszczelarskiego na terenie kraju w latach 1995-2003.

Za podstawę do scharakteryzowania zasobów pożytkowych posłużyły notatki z punktów kontroli wagowej pożytków w latach 1995-2003. W omawianym okresie zgromadzono 273 meldunki dotyczące zmian wagi ula kontrolnego od 1 maja do 31 sierpnia każdego roku. Najwięcej materiałów dostarczyli pszczelarze z województw: śląskiego, kujawsko-pomorskiego, lubelskiego i lubuskiego. Najslabiej reprezentowane były województwa wielkopolskie, mazowieckie, małopolskie i pomorskie, natomiast z województw: warmińsko-mazurskiego, dolnośląskiego i opolskiego nie otrzymano żadnych danych.

W latach 1995-2003 średni przybytek brutto za sezon pszczelarski wynosił 39,7 kg/pień, przybytek netto 31,7 kg/pień, a ubytki stanowiły 20,1 % przybytków brutto. W badanym okresie utrzymywała się tendencja przemieszczania się pożytków w rozkładzie sezonowym bliżej początku wiosny. W większości pasiek w Polsce świeży nakrop w ulu pojawia się już w pierwszej dekadzie maja. W tym okresie pszczoły zdołały zgromadzić średnio w skali kraju 11,8% rocznego przybytku brutto, w drugiej dekadzie 13%, a trzecia dekada maja była okresem najwyższych przybytków (około 17%). Po upływie miesiąca udział rocznego przybytku brutto wynosił około 42%, z czego wynika, że na miesiąc maj przypada główne nasilenie wziątku. W czerwcu osiągnął on poziom 37% i wzrósł o około 3% w stosunku do lat poprzednich. Największy udział przybytków brutto miał miejsce w pierwszej dekadzie czerwca, chociaż w niektórych regionach zanotowano ponad 10% udział przybytków w trzeciej dekadzie tego miesiąca. Dienne przybytki masy ula w lipcu występowały na terenie całego kraju, chociaż nie we wszystkich okolicach, szczególnie pod koniec tego miesiąca. W dwóch pierwszych dekadach lipca średnia suma przybytków kształtowała się na poziomie odpowiadającym pierwszej dekadzie maja. Potem następował silny spadek do około 1,0 kg w sierpniu, co stanowiło 0,8% krajowego przybytku brutto. W latach od 1995 do 2003 w skali całego kraju w lipcu zrealizowane zostało 20,2% rocznego przybytku brutto. Zasięg wziątków sierpniowych w naszych badaniach był już bardziej ograniczony, ale także zanotowano go w wielu miejscowościach. W latach od 1995 do 2003 w skali całego kraju w sierpniu zrealizowane zostało zaledwie 2,5% rocznego przybytku brutto.

**Słowa kluczowe:** pożytki pszczele, ul na wadze, rodzina pszczela.