

ASD Report

Organisation and Staffing

All nine apicultural advisory positions were filled for the first time in a number of years. Mr Ted Roberts, formerly Senior Lecturer in Agronomy at Massey University, joined our section and has been a valued addition to the team.

Over 42 field officers, livestock officers, and 58 beekeepers were engaged as part-time inspectors. Many beekeepers didn't seek remuneration for their efforts and this is appreciated.

Mr Brian Milnes, Field Officer, Auckland, began training as a bee pathologist and will shortly be offering a diagnostic service based at the MAF Plant Protection Centre, Lynfield, Auckland.

Beekeeping Statistics

a) Beekeepers, Apiaries, and Hives

There were 6,934 beekeepers owning 328,961 colonies of bees at 31 May 1986. Beekeeper numbers have remained static but hive numbers have increased by 19,348 or nearly 6%.

Significant increases in the number of beekeepers and hives in the 51-250 group occurred in several regions. This mainly reflected a growth in hives supplied for kiwifruit pollination.

(b) Honey Production

The total crop was assessed at 9,471 tonnes (29kg/hive) compared with last year's production of 10,314 tonnes.

The record 1984/85 crop took a long time to clear and many beekeepers faced severe cash flow problems. Overseas buyers were active late in 1985 and continued to make good offers for the 1986 crop. These early sales of the current seasons production were welcomed by the industry with prices for dark honey ranging from \$1.35-1.67/kg net, light honeys from \$1.65-\$1.85/kg while some white honeys were reported as fetching a late season premium of \$2.00-\$2.10/kg.

American Brood Disease

Levels of American brood disease are of concern to MAF, particularly in the Auckland region where several bad outbreaks occurred. Beekeepers continue to split, sell, and move diseased hives contrary to the Apiaries Act and MAF policy.

Chalkbrood

Chalkbrood disease continued to spread but there are still many areas in New Zealand apparently free of the disease. A survey was carried out in Northland on the incidence of chalkbrood and MAF's policy towards the disease was prepared. These have been reported in the NZ Beekeeper 190 Winter 1986: 8-10 and 29).

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District	Beekeepers			Apiaries		Hives
	1986	1985	1986	1985	1986	1985
Whangarei	659	657	1849	1640	17867	18265
Auckland	1197	1467	2953	2715	27450	18594
Hamilton	726	739	3100	3272	46288	45466
Tauranga	833	801	3661	3355	52324	48329
Palmerston North	1393	1395	3851	3793	39434	36274
Nelson	596	583	2268	2133	25907	22775
Christchurch	804	780	3816	3528	48751	45169
Oamaru	360	355	3189	3455	41730	46006
Gore	366	326	2179	2199	29210	28735
NZ TOTAL	6934	7103	26866	26090	328961	309613

Fig. 1)

	Whangarei	Auckland	Hamilton	Tauranga	Palm. Nth	
1984	300	300	731	682	495	
1985	572	930	1697	1550	1085	
1986	402	1096	1492	1150	887	
	Nelson	*Christchurch	Oamaru	Gore	Total	Kg/hive
1984	800	1150	1100	560	5818	21
1985	685	1650	1352	790	10314	33
1986	871	950	1473	1150	9471	29

*Christchurch figure includes honeydew

Fig. 2

Description	Year Ended June 1985		9 Months Ended March 1986	
	Tonnes	\$NZ fob	Tonnes	\$NZ fob
Bulk honey	830	1,646,012	1370	2,778,769
Retail packs	175	552,493	183	521,258
Comb	258	1,621,987	90	519,309
Honeydew	661	1,336,385	308	660,817
Total	1924	5,156,877	1951	4,480,153

Fig. 3

Apiary District	Diseased Apiaries		Diseased Colonies		Apiaries Inspected MAF or MAF Agents
	No.	%	No.	%	%
Whangarei	65 (48)	3.5 (2.9)	141 (107)	0.8 (0.5)	10.6
Auckland	177 (63)	5.0 (2.3)	740 (152)	2.7 (0.8)	17.0
Hamilton	127 (165)	4.1 (5.4)	218 (220)	0.5 (0.5)	12.7 (14.4)
Tauranga	163 (268)	4.5 (8.0)	454 (676)	0.9 (1.4)	7.0 (10.4)
Palm. Nth	112	2.9	344	0.9	11.0
Nelson	141 (153)	6.2 (7.2)	287 (340)	1.1 (1.5)	6.1 (7.5)
Christchurch	56 (40)	1.5 (1.1)	145 (303)	0.3 (0.7)	11.0
Oamaru	107 (88)	3.4 (2.6)	284 (188)	0.7 (0.4)	10.0 (8.8)
Gore	102 (129)	4.7 (6.2)	307 (296)	1.1 (1.0)	9.3 (8.5)
Total	1050	3.9	2920	0.9	10.5

Target 10% MAF staff inspected 1440 apiaries, beekeepers (paid and unpaid) also inspected 1440 apiaries.

Fig. 4

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MAF Budget

a) Reductions in government allocations to MAF will need to be replaced by income generation if MAF is to remain at present resource levels. Some restructuring within MAF and a change of emphasis is also planned.

Beekeepers have been asked to consider funding disease control, quality assurance and export certification work carried out by Advisory Services Division (ASD). The Director-General of Agriculture has stated that where MAF has a statutory responsibility, or a monopoly, it must provide least cost services and cannot build "profits" into cost structures.

Figure 5 gives a summary of MAF expenditure on disease control, export certification and quality assurance.

Charging for services other than regulatory or export certification will be at the discretion of the local adviser and assumes he has a "willing" client.

b) Regulatory Costs

ASD incurs considerable costs in administering the Apiaries Act each year, such as inspecting for disease, keeping records, and maintaining the apiary register. MAF is also involved with aspects of quality assurance and export certification for beekeepers.

The cost to MAF for wages and vehicle running costs was \$133,414 for an average of \$14,824 per apiary district. (Range \$8,399-\$23,244). These figures, do not include office overheads or costs to operate the apiary registers except for wages, nor do they include the costs for monitoring the toxic honey areas in the Coromandel/Bay of Plenty and Marlborough regions. Current MAF costs to maintain the permit system and MAF test hive programme in the Coromandel/Bay of Plenty area are \$17,099 per year. A large number of beekeepers also gave their services voluntarily last year for hive inspection work.

	No. used	Km	Km Cost \$	Days (8 hr)	Wages \$
MAF staff	53	40,674	15,213	900	102,500
Beekeepers (paid)	33	12,540	6,091	136	9,610
Beekeepers (unpaid)	25				
Total	141	53,214	21,304	1,036	112,110

Fig. 5

	No. Apiaries	No. Hives
Found by MAF or MAF agents	276	1204
Reported by beekeepers	774	1716
Total	1050	2920

Fig. 6

On a per beekeeper basis a licence or registration fee of around \$20 would be required to meet the current minimum level of expenditure.

It is difficult to put a value on MAF's inspection service but a recent MAF estimate put a value of \$144 (range \$103-\$176) on a hive destroyed through having American brood disease. If 25% of the 1204 diseased hives found by MAF were dealt with properly by their owners, then these 301 hives would only need to infect another three hives each at \$144 per hive to cost the equivalent of what MAF spends on disease control and export certification for the whole country.

Advisory Activities

a) Study Tour to NSW

Eight apicultural advisory officers spent five days in NSW in April 1986 examining aspects of Australian beekeeping and government legislation. Talks have been presented to branches on the tour and a report has been made available to executive.

Export of Bees and Queen Bee Producers Associations

Production of package bees for Canada continued to grow with 16,480 1 kg equivalent packages being exported. In addition to these packages an extra 25,700 queen bees were also exported to over 10 countries. The combined value of the packages and queen bees was estimated at \$NZ681,788 (fob).

MAF assisted queen bee breeders to form an association; the NZ Queen Bee Producers Association (NZQBPA) during the year. The NZQBPA formulated a charter of membership, a code of ethics, and sent a quarterly newsletter to members.

A survey of queen bee quality was also carried out on queen bees supplied by producers. Eight parameters were measured and the results showed a wide variation in queen quality. A national advisory programme was prepared to assist producers improve the quality of their stock.

The French Nicot no-graft system of rearing queen cells was evaluated and will be promoted for the coming season.

Negotiations continued with overseas governments to ratify or simply export certification procedures.

c) Kiwifruit Pollination

An estimated 50,565 colonies were placed in kiwifruit orchards last November-December. These returned \$3,379,940 to beekeepers by way of pollination fees (range \$49-\$85/hive) and \$213.2 million to the growers (26 million trays at \$8.20 each).

Beekeepers operating in all major kiwifruit areas have now formed pollination associations. These groups have adopted minimum hive standards based on MAF recommendations (NZ Bee-

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NEW ZEALAND HONEY PRODUCTION, IN TONNES

(As at 31 May Annually)

	Whangarei Auckland	Waikato King Country Taupo	Bay of Plenty Coro- mandel Poverty Bay	Hawkes Bay Taranaki Manawatu Wairarapa	NORTH ISLAND	Marl- borough Nelson Westland	North & Central Canter- bury	South Can- terbury N Otago & Central Southland Otago	SOUTH ISLAND	New Zealand	Yield per Hive (kgs)		
1971	440	1239	671	581	2931	207	711	895	914	2127	5658	28.2	
1972	489	1247	518	1079	3333	252	406	1082	620	2360	5693	27.9	
1973	573	1069	600	551	2793	424	600	610	914	2548	5341	25.7	
1974	386	1094	680	702	2862	255	600	490	1055	2400	5262	25.5	
1975	448	1378	750	890	3466	330	1200	1300	1115	3945	7411	36.3	
1976	375	530	280	554	1739	256	1200	950	770	3176	4915	23.9	
1977	482	1433	490	704	3109	483	1000	821	665	2969	6078	29.3	
1978	450	1646	1000	1440	4536	394	950	959	1440	3743	8279	39.2	
1979	420	1360	540	835	3255	265	1050	1249	655	3219	6474	28.5	
1980	550	1129	400	810	2889	590	1750	1225	1035	4600	7489	32.0	
10 yr Ave	461	1213	603	815	3091	346	947	958	918	3169	6260	29.7 kgs	
	Whangarei Auckland H. Plains												
1981	650	1043	470	1088	3251	491	1150	1100	940	3680	6931	29.1	
1982	600	1465	1130	1020	4215	325	430	550	975	2280	6495	25.6	
1983	696	877	720	360	2653	300	1050	900	150	2406	5053	18.8	
1984	300	731	582	495	2208	800	1150	1100	560	3610	5818	21.0	
1985	572	930	1697	1550	1088	5837	685	1650	1352	790	4477	10314	33.3
1986	402	1096	1492	1150	887	5027	871	950	1473	1150	4444	9471	29

Sources (concluded)

Danish Jutland. The honeydew of *C. pilicornis* feeding on *P. abies* has attracted bees in East Scotland and Wiltshire. This aphid also occurs on some other spruces in Britain, including Serbian spruce, *Picea omorika*.

Of the important sources from which both honeydew and nectar may be collected by bees, the aphid *Eucallipterus tiliiae* occurs on lime trees, *Tilia spp.* in New Zealand. In mid-Europe there can be major flows of honeydew, but it may crystallise on the tree. Romanian beekeepers record yields of 6-12kg of honey per hive, produced by the bees from nectar secreted by the flowers of lime trees.

The sweet chestnut aphid, *Myzocallis castanicola*, is known from sweet or spanish chestnut, *Castanea sativa*, in New Zealand. Honeydew from this insect occurs in southern Europe and Romania, where bees frequently collect it. Bees also eagerly work chestnut flowers for nectar.

Although four important foreign insect-producers of honeydew are present in New Zealand, there seem to be no records of bees storing this honeydew. Just as certain conditions must occur for honeyflows to eventuate, so it is with honeydew flows. Not the least of these for honeydew flows is that there must be large numbers of trees of the right species. European honeydew flows characteristically occur when there are forests of the right trees. Few, if any, forest-scale plantings of the aforementioned host trees yet exist in New Zealand.

There also appears to be no definitive records of honey bees working introduced insects for honeydew. During late 1975 however, I observed honey bees, as well as queen German wasps (*Vespa germanica*) and queen bumble bees (*Bombus terrestris*) collecting honeydew near Craigieburn Forest Park. Host plants were *Pinus sylvestris*, *P. uncinata*, and *P. mugo/uncinata*. The aphid secreting the honeydew was *Eulachnus brevipilosus*.

What prospects, if any, are there for introducing honeydew-producing insects that may thrive on existing exotic

forests? Unfortunately for beekeepers, honeydew-producing insects are generally regarded as detrimental to their host plants. Insect feeding often reduces plant growth rates, distorts young growth, and may coat plants with sticky and/or unsightly mouldy honeydew and fungi. The purposeful introducing of honeydew-producing insects would almost certainly be strongly opposed from a number of quarters.

The four insect species now established were not purposely introduced but arrived as part of a continual series of accidental or natural establishments. For example, since the 1940s five species of aphids of the genus *Cinara* have been recorded (1), one of which is the already-mentioned *C. pilicornis*. The rate of colonisation suggests that possibly other honeydew-producing species can be expected to establish.

Beekeepers may benefit by observing whether or not bees are collecting exotic honeydew, and by moving hives accordingly to take advantage of honeydew flows.

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References:

- (1) Baker, R.T. 1985: Aphids of the genus *Cinara* established in New Zealand. The Weta, 8:1, p.4
- (2) Crane, E. and Walker P. 1985: Important honeydew sources and their honeys. Bee World 66: 3, pp. 105-112
- (3) Sunde, R.G. 1984: New records of plant pests in New Zealand 4. 7 aphid species (Homoptera:Aphidoidea). N.Z. Journal of Agricultural Research 27: pp. 575-579

Popular Summary

Four of the 21 important exotic honeydew-producing insects and their host plants occur in New Zealand. At present, host plants are rather scattered. Honeydew flows of major economic importance to beekeepers are only likely when host plants form forests.

The purposeful introduction of additional honeydew-producing insects would probably be opposed because of the damage that can be caused to host plants. However, further honeydew-producing insects are likely to reach New Zealand of their own accord.

Beekeepers may benefit by observing whether their bees are working exotic honeydew, and moving hives to take advantage of honeydew flows.

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keeper Autumn 1986: 20-22) and a code of ethics. Several of the associations have also employed a consultant to evaluate members hives during the pollination period. This quality assurance is giving the growers confidence in the abilities and integrities of the beekeepers. This will be needed in the future as artificial pollination is promoted more and more.

MAF officers have carried out surveys on pollination hives in orchards for a number of years. It is pleasing to report that the quality of hives continued to improve and most hives met the recommended minimum standard (NZ Beekeeper Autumn 1986: 23-24).

Industry Plan

MAF advisers worked with local branches and the executive to help formulate and carry out aspects of the industry plan. The beekeeping industry continues to lead primary production industries in its ability to be market led, to respond to market imposed conditions, and to plan its own future. The executive has received congratulations from the Under Secretary of Agriculture and the Director-General of Agriculture for its forward looking approach and industry plan.

Apicultural advisory officers also ran strategic planning workshops for queen

bee producers, commercial honey producers, and kiwifruit pollinators.

e) Financial Monitoring

Monitoring has been going on for a number of years in some regions and three reports have been published (NZ Beekeeper No. 187 Spring 1985, No. 188 Summer 1985 and No. 190 Winter 1986). A national monitoring system has been devised and will be in place for the 1986/87 season.

f) Emergency Response Procedures (ERP) Manual

A final draft of the ERP manual has been prepared and workshops in all apiary districts have been (or will be) held with branches to discuss the implications if an exotic pest or disease is discovered.

