

Department of Agriculture

Horticulture Division



Address by A. M. W. Greig, Director, Horticulture Division at the Nelson Conference

Introduction

I appreciate very much a further opportunity of meeting you as beekeepers and I am particularly pleased that you are holding your Annual Conference here in Nelson because Nelson is renowned as a thriving fruitgrowing centre and a thriving fruitgrowing centre should have a thriving beekeeping industry associated with it. I hope that beekeepers in this district will also benefit directly from meeting beekeepers and departmental staff associated with beekeeping from other parts of the country. The new Minister of Agriculture the Hon. T. L. Hayman has asked me particularly to say how sorry he is that he is unable to attend this year because of his Ministerial responsibilities in Wellington at this time of the year.



From time to time the importance of this industry is mentioned through statistics such as the number of beekeepers, the number of hives established throughout the country or the value of the honey and beeswax directly produced. In addition reference has previously been made to the great value of bees as pollinating agents.

However, it is not often that anyone of us is in a position to make a direct comparison between the efficiency of beekeeping in New Zealand and beekeeping in other parts of the world and therefore today I propose to emphasise certain points made by an American authority when visiting this country a few years ago. Some of these points were made to me personally at the time and may not have been made known to you as beekeepers. I refer to remarks by Dr. E. J. Dyce, Professor of Apiculture for Cornell University, U.S.A., a man well known to many of you individually, and whose work as a Professor of Apiculture covered apicultural research, teaching, and extension work from the New York State College of Agriculture at Ithaca. He emphasised that in the United States, and the same is becoming increasingly true in New Zealand, we cannot get along without honey bees if we are going to continue economically the production of many of our important fruit and seed crops. He was firmly of the opinion that whilst basic research had its advantages and value, information that will save beekeepers money in the production and marketing of their honey is of more vital and immediate importance to them than anything else. He went on to say that the New Zealand advisory service to beekeepers was superior to that in New York State which is organised on a county agricultural agency basis and that beekeepers in this country are better off financially through the service being given by Apiary Instructors. He was firmly of the opinion that the Apiary Instructor achieved more through his responsibilities in the control of bee diseases being associated with extension work and also the fact that an Apiary Instructor being fully engaged in field work in his particular district enabled him to obtain a better knowledge of individual beekeepers and their problems as a whole. He also considered that the recruitment of former

beekeepers as Apiary Instructors had been a sound investment as far as this country was concerned. He was particularly impressed with the manner in which specialist officers of the Apiary Section were designing labour saving devices of direct benefit to beekeepers. Mr. Paterson, Apiculturist, has brought models to this conference of some further labour saving devices in the apiary. These are models of mechanical lifters which can be used in conjunction with the work of uncapping combs for extraction.

Dr. Dyce emphasised that the methods employed by those engaged in the beekeeping industry in New Zealand were as modern and as efficient as he had seen anywhere. He linked his remarks with the service provided by the Department of Agriculture through its Apiary Instructors, specialist officers, Superintendent, and research officer, a team for which he had seen no equivalent or counterpart in any other part of the world. In these days of change and re-organisation it is particularly important for beekeepers to realise what a valuable service they have had through these specialised sections of the department.

One important comment made by Dr. Dyce which has not yet been altered was that on arrival in New Zealand it came as a great surprise to him to learn that courses in apiculture were not given by both the agricultural colleges, and he strongly recommended that such courses be organised and commenced as soon as possible.

Honey Crops

I know that for a number of years beekeepers have expressed some doubt regarding the accuracy of departmental estimates of crop production. It must be realised that although these figures are based on the full and frank co-operation of beekeepers themselves and on the Instructor's knowledge of the prevailing climatic conditions no one would suggest that departmental estimates could be 100% accurate. However, with the view to obtaining the greatest degree of accuracy, this subject has been tackled by the Superintendent of the Beekeeping Industry assisted by senior members of the Apiary Section, and a new system of determining the honey crop has been put into operation during the last two seasons. By this system three distinct classifications are made. A forecast of crop prospects is made monthly from October to December based on the condition of hives, prevailing weather conditions and the flowering of clover and other nectar sources prior to the commencement of the main honey flow. This is followed by an estimate in the months of January to March, that is the net surplus of honey produced by the bees at the time of the estimate; for the purpose of these estimates the net surplus is the quantity of honey available for harvesting over and above the quantity of stores honey required to maintain the bees throughout the coming winter and the spring months.

Finally an assessment of the season's honey crop is made for each district at May, 31. This assessment is based on the quantity of honey the beekeeper has harvested or has available for harvest: all figures whether forecast, estimate or final assessment are regarded as confidential between the beekeeper and the department. It is standard practice only to release for general information the figures for a district or for the country as a whole.

The final assessment for last season's crop as at May 31, was 5400 tons of honey and 189,000lbs of commercial beeswax. Although this production was below that of the previous season ending May 31, 1960 these production figures approximate the average of the past six years.

The crop in the Nelson district was fair, Marlborough was light, due to dry weather conditions and cool winds, but in Westland the production was well above average. The flowering of the rata on the West Coast was exceptional last year and as a result honey production from all sources on the Coast was the highest recorded. Crops in the districts of North Auckland, Auckland, Canterbury and Southland were above average but in Manawatu and North Otago crops were considerably below average.

Staffing

The Apiary Section is fortunate in being one of the few sections of the department which is up to full strength. The resignation of Mr. D. W. Seal was

followed by a change in headquarters for the Southland district from Invercargill to Gore and Mr. G. L. Jeffery was transferred to that centre. Mr. V. A. Cook has commenced duty at Oamaru filling the vacancy caused by the transfer of Mr. Jeffery. It is matter of interest that the Apiary Section now has about 25% of field staff who had their basic training in the United Kingdom before coming to this country. I refer to Messrs L. A. M. Griffin, A. W. Bennett and V. A. Cook. I regret to state that Mr. R. S. Walsh, Honey Grader, has had to resign his specialist duties as grader, owing to ill health, but his services are being retained on field duties as an Apiary Instructor, Auckland. It is hoped that a permanent appointment will be made to the position of Honey Grader and that one officer will be freed from district duties in order to concentrate on field experimental work and other specialised work in the South Island.

I have previously made reference to apicultural cadetships and I continue to be concerned that insufficient young men who have grown up in association with the beekeeping industry and have reached University Entrance during their post primary school education, should be offering as apicultural cadets. On this subject I believe your Association should be giving wide publicity to the opportunity which exists in order that the Instructors of the future may be recognised for their scientific qualifications as well as having a sound training in the practice of beekeeping. Unless this is done there is a possibility that future appointees may be less adequately trained in the commercial aspects of beekeeping.

Bee Diseases

I would now ask this Conference to turn its attention to a continuing problem but one with which your industry has always been seriously concerned. I refer to the serious bacterial disease *Bacillus Larvae*. The appearance of this disease in New Zealand many years ago led to the foundations of the Apiaries Act but one aspect which appears to have been overlooked by many beekeepers is that the prime responsibility for the detection of this disease rests with the beekeeper himself. Any action taken by the department or by Inspectors under the Act whether they are Apiary Instructors or part-time beekeepers is to assist beekeepers as a whole, but the fact remains that this is primarily a responsibility of the individual beekeeper.

Section 8 of the 1927 Act says: "Every beekeeper in whose apiary disease appears shall forthwith take proper steps to cure the same and to prevent its spread, and shall within seven days after first becoming aware of the presence of the disease send written notice thereof to an Inspector." Instead of this being the accepted standard practice it seems to be ignored by most beekeepers. Let me re-emphasise that the detection of this disease is primarily the responsibility of the beekeeper concerned and one of his first duties is to notify the Apiary Instructor for the district who is gazetted as an Inspector under the Act.

For many years it has been accepted that the larger or commercial beekeepers were responsible men who would keep this serious disease under control and the inspection service organised each year through Apiary Instructors with qualified beekeepers acting as part-time Inspectors, has been concentrated on the part-time hobbyist. Recent events whereby this serious disease has been found well established throughout the hives of some commercial beekeepers has caused us grave concern and also to doubt the wisdom of leaving many commercial beekeepers to act as their own Inspectors. I refer to the recognised fact that it is virtually impossible for any Apiary Instructor finding disease, with part-time Inspectors, to inspect all the hives in his district in any one season. Naturally he has concentrated on those hives where he thought, through their previous history that disease was more likely to be found and when found, the time taken in burning diseased hives has restricted the inspection coverage which might have been given to a larger number of hives. I have always doubted whether the percentage figures relating to diseased hives as found from time to time in relation to the total number of hives inspected, gave an adequate picture of the disease position throughout any Instructor's district. Even with this proviso the incidence of *Bacillus Larvae* in several districts is an indication that some beekeepers anyway have become too complacent. In the Otago

Southland district 48 apiaries out of 203 were found diseased and 156 hives were burnt. At the other end of the scale is the Hawkes Bay district where only four diseased apiaries were found, with 13 diseased hives out of 742 apiaries inspected, containing over 3000 hives. This is much less than one percent.

The overall position as seen by the statistics to which I refer in the 1960/61 season is 285 apiaries were found with Bacillus Larvae out of 4059 apiaries, as a consequence of which 622 hives were burnt out of 36,109 hives inspected. The percentage of apiaries and hives inspected and found with disease was 7.02 percent and 1.72 percent respectively.

For the year ended March 31, last, £1350 was provided on the departmental estimates under the heading of "Apiary Inspection" and £1314 was spent. This shows that there is still the continuing difficulty of ensuring that beekeepers who have undertaken to do a certain amount of part-time inspection work keep their undertakings with the department. Certain changes were made during the current financial year whereby some inspection has been done in the autumn and this new procedure contributed to the finding of diseased hives with the honey crop still present. I must emphasise for public information that although bees are seriously affected by this particular disease, honey removed from diseased hives is not harmful to human beings.

Disease Control

As beekeepers you are well aware that the existing policy is that all diseased hives affected with Bacillus Larvae must be completely burnt as soon as the disease is found. I hope that beekeepers are not going to be tempted to use methods advocated and used in some countries overseas. I refer to the treatment of hives with sulphur drugs. The use of these drugs in New Zealand for the treatment of diseased bees cannot be too strongly condemned, both from the point of view of control of Bacillus Larvae and also because possession of these drugs for this purpose is contrary to certain Acts and Regulations administered by the Health Department. Under the Poisons Act all sulphonamides including sulphathiazole have been declared prescription poisons because in excess quantity they can cause the poisoning and even death of humans. They may only be used in accordance with a prescription issued by a medical practitioner or dentist for their human patients, or by a veterinary surgeon for animals under his care. The possession by a beekeeper of stocks of sulphonamides is not only illegal but also their use by a beekeeper in treating B.L. would certainly make the control of this disease in his apiaries and throughout his district more difficult and also might seriously jeopardise the marketing of honey if traces of these chemicals were ever found in any individual beekeeper's honey.

Diagnostic Services

During the past year the department has extended its diagnostic services to beekeepers by enlisting the assistance of other research scientists to help the bee research officer, Mr. Palmer-Jones, at Wallaceville and also by the establishment of a separate diagnostic centre at Taieri near Dunedin. It is intended that Ruakura, Hamilton will be similarly established as a bee diagnostic centre in the near future.

If these diagnostic centres are to be fully effective it is necessary that beekeepers remain observant and notify the Apiary Instructor for their district as soon as bees are showing symptoms of distress, the cause of which is unknown to the individual beekeeper. Beekeepers should carefully note any unusual happenings in the vicinity of their hives which they believe may have caused distress to their bees. The Apiary Instructor when notified will collect samples and forward them to the appropriate diagnostic centre. At the same time he will forward as much information as he can obtain in order to give the diagnostic scientists a lead as to possible causes. As a routine procedure all samples of bees received are being systematically checked for the range of bee diseases including acarine disease, Acarine woodii; external harmless acarine mites; nosema apis; and Malpig-hamoeba. Of the samples received at the diagnostic centres up to date, no bees have been found infested with the harmful internal acarine mite. Harmless mites have been found on bees from apiaries in both the North and

South Islands. During the coming spring it is intended to commence a New Zealand wide survey covering all these diseases.

The purpose of this survey is to have more factual knowledge regarding the extent of the distribution of bee diseases in this country. I wish to re-emphasise that the serious acarine disease, *Acarine woodii* has not been found in this country.

Agricultural Chemicals

A subsection of the diagnostic service is known as the Toxicology Section which endeavours to identify particular chemicals which may affect bees. The diagnostic section at Wallaceville is not able to provide a full chemical diagnostic service at present and can only handle samples of bees which are regarded as a part of serious losses suspected to be due to the use of chemicals in the vicinity of apiaries. Again the individual beekeeper should call in the Apiary Instructor for the district as promptly as possible and supply him with as comprehensive a case history as is known to him as a beekeeper. Beekeepers require to be particularly vigilant and should note down promptly any information they obtain concerning spraying or other use of chemicals in the vicinity of their hives. It is in the interests of the individual beekeeper himself as well as those who endeavour to assist him through toxicological investigations, to have adequate case histories to accompany samples of bees which are forwarded for analyses.

During the past year the Agricultural Chemicals Board has given careful consideration to some of the urgent problems facing beekeepers. It appointed a special committee of which I was Chairman, to consider the effect of hormone weedkillers on bees both directly and indirectly through pasture. The appointment of this committee in itself was an advantage because through it the Board was able to bring together for discussion a cross section of individuals whom the Board considered could most readily contribute to a solution of this problem. This committee consisted of representatives of chemical manufacturers and distributors, and members of the Public Service associated either with beekeeping or the use of hormone weedkillers. The findings of the committee were adopted by the Board and released for publication. It should be pointed out that your own representative on the Board, Mr. Tom Pearson, played an active part in indicating to the Board the importance of this particular problem, and in the establishment of the Technical Committee.

I believe the conclusions reached by this Technical Committee were satisfactory to all the parties concerned. I expect Mr. Pearson has given your Association a full report on this subject. Through this problem and similar problems close liaison has been maintained between the Horticulture Division and your representative on the Agricultural Chemicals Board.

Research and Field Experimental Work

Further investigations into the pollination of white clover and lucerne by honey bees has proceeded in South Island districts. These projects have been carried

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out jointly by the Animal Research Station Wallaceville; and Horticulture Division, represented by Mr. I. Forster of Oamaru.

The first stage of the lucerne pollination project has been completed. This covered 25 seed crops in Canterbury, North Otago and Central Otago. The relationship of other factors such as bee activity, flower density, degree of pollination and relevant factors between the bee and the lucerne plant is being studied so that the pollination requirements of lucerne can be determined. This may be regarded as a long term project as it will probably take several seasons to complete.

Other work done by Wallaceville during the past year has been in connection with field investigations and laboratory tests regarding the effects of 2,4-D mixture on bees.

Some bee losses in certain districts such as Hawkes Bay had proved baffling over several years. A particular loss has now been traced to the karaka tree (*Corynocarpus laevigata*). Nectar produced by the karaka tree has been shown in field experiments and laboratory work at Wallaceville to be highly toxic to adult honey bees but not to brood. The karaka flowers in the spring and is very attractive to bees. Heavy bee mortality, resulting in loss of hive strength, may occur in apiaries located near karaka trees. It is considered that losses from this cause can be dealt with only by resiting apiaries or moving them out of bee range of karaka trees during their flowering period.

It is also considered that karaka nectar constitutes no danger to humans because it is collected only in small amounts in the spring and is consumed by the bees before the honey is extracted. Also karaka nectar rapidly becomes non-toxic. The high toxicity of karaka nectar to bees is an additional safeguard as field bees succumb before they can bring much of this nectar into the hive.

Conclusion:

I trust that this review of research, experimental, advisory and regulatory work done by the Department of Agriculture co-ordinated by Mr. E. Smaellie, Superintendent of Beekeeping will be a useful background to members of this conference as you discuss the many remits on the Order Paper associated with the various problems facing you today.

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