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Survey of 1988 spray diary/maturity test  
procedures used by export kiwifruit growers

SURVEY OF 1988 SPRAY DIARY/MATURITY TEST PROCEDURES  
USED BY EXPORT KIWIFRUIT GROWERS



**Objective:** To measure the effectiveness of the new spray diary/maturity test procedures introduced for the 1988 season.

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## DEFINITION OF TERMS

1. To save confusion, all references to the former New Zealand Kiwifruit Authority will be made as the New Zealand Kiwifruit Marketing Board (NZKMB).

2. Spray diary: All growers of export kiwifruit are required to keep an approved industry diary which records all sprays applied to vines and shelterbelts, different applications applied to separate blocks, the actual application date, and the date bees are bought in and out of the orchard.

All spray applications must be made in accordance with the MAF Export Spray Programme for kiwifruit, which is revised annually to ensure it remains within international guidelines.

All diaries are audited by NZKMB staff before the fruit is harvested each year.

3. Maturity test: Maturity tests are required to ensure the kiwifruit has reached the minimum maturity level of 6.2% soluble solids (or Brix level) which effectively measures the sugar level of the fruit.

A sample of 10 vines must be selected at random across the block and from each vine, one export grade fruit chosen from within the leaf canopy at shoulder height or higher, positioned one metre along the leader from the trunk and one metre along a lateral.

Within an hour, the dry fruit must be tested with a refractometer which measures the sugar level. All fruit are cut 15 mm from both ends (blossom and stem) and one or two drops of juice from each cut squeezed onto the refractometer prism.

If the average result from all 10 fruit is 6.2% ss or above, the fruit can be cleared for harvest. If the result range is greater than 2.0% ss, another sample must be taken.

Once the test has been completed, the grower contacts the local NZKMB maturity clearance service and states orchard, packhouse and block details so a certificate may be issued if the spray diary has already been audited and cleared.

### EXECUTIVE SUMMARY

1. The 53% response from growers to the survey is considered high, compared to a recent industry financial survey which drew only a 37% response.
2. The various methods of communication undertaken by the NZKMB to convey the 1988 spray diary/maturity test procedures to grower respondents was effective. They include the use of the New Zealand Kiwifruit Journal, the growers' manual letter, packhouse meetings, maturity testing video, and field service officers.
3. 96% of respondents said the procedures were practical to implement.
4. 92% of respondents said the procedures were conveyed to growers early enough before the 1988 harvest.
5. 45% of respondents who suggested improvements to the procedures said greater responsibility should be given to growers and packhouses to co-ordinate maturity testing and clearance.
6. Over 90% of respondents were able to contact the NZKMB quickly to request a maturity test, have the maturity certificate issued, had their fruit cleared for exports to all markets and had no delays caused by deviations in their spray diaries.

### RECOMMENDATIONS

1. In deciding guidelines for the 1989 harvest, it is recommended that:
  - the NZKMB consider giving more responsibility to growers and packhouses to undertake maturity testing in local growing areas. Each packhouse appoint a maturity tester responsible for all fruit entering the packhouse and liaison with growers and the NZKMB;
  - the NZKMB retain the spray diary audit function but send packhouses a copy of all spray diary clearance certificates which concern growers using their packing facilities;
  - the NZKMB establish maturity monitoring systems in all growing areas to provide detailed records of harvest start dates and provide a local guide as to whether or not immature fruit is being picked;
  - the NZKMB continue to outline and reinforce the importance of growers adhering strictly to spray diary and maturity testing procedures both for their individual benefit and for the entire industry. The consequences of misdemeanours should continue to be highlighted through both written and verbal communications.
  - the NZKMB continue to utilise New Zealand Kiwifruit (NZKMB's journal), the growers' manual and to a limited degree, local media to communicate to growers important operational changes such as maturity testing procedures.

## PROJECT BACKGROUND

This project was undertaken on behalf of the New Zealand Kiwifruit Marketing Board to fulfill the stage II course requirements of the 1988 New Zealand Rural Leadership course.

The origin of the project had its beginnings back in 1986 when the New Zealand Kiwifruit Marketing Board (NZKMB) agreed to introduce new maturity testing procedures for the industry. The new test was introduced following consultation with and advice from the DSIR. Ongoing research since the maturity test was introduced in 1980, had developed a less variable test which the NZKMB agreed would provide more consistent results for the industry.

However, come harvest time 1987 problems arose with the new testing procedures particularly on young vines.

As a result of those problems, the NZKMB announced on 4 May 1987 "that the new maturity testing procedure would remain in position. But growers may use the old test procedures if they wish and notify NZKMB maturity receptionists of their decision".

This decision, announced to growers in a letter from NZKMB chairman Bruce Honeybone, allowed the NZKMB to further monitor the new test procedures during the 1987 season. The results could then be reviewed before deciding on the procedures to be adopted for the 1988 season (see Appendix 1).

By allowing growers the choice of the two tests so late in the season, the NZKMB drew criticism from growers and exporters alike. Criticism was also levelled at the NZKMB through the media, with the catalyst being a press release from new exporter, Kiwi Harvest Ltd. The company claimed the NZKMB was delaying the 1987 harvest and as a result, costing growers money through delays in shipping and overseas sales. (see Appendix 2)

These claims were denied by the NZKMB chairman and chief executive officer, Simon Caughey in the media. And concern was expressed over the confusion and lack of understanding about the reasons for the introduction of the new system and the difference in the sampling and testing procedures between the two tests.

This admission, by the NZKMB chairman, indicated that grower communication specifically and public relations generally was lacking within the NZKMB. Steps were taken during July and August 1987 to rectify that and a public relations officer was appointed in September 1987.

By November 1987, the maturity testing procedures for the 1988 season had been agreed by the NZKMB. The old maturity test was retained, with minor modification to the sample collected for testing.

In conjunction with this decision, the NZKMB had also decided to link spray diary audit with maturity test procedures to ensure that no export kiwifruit leave New Zealand without first being audited for spray application. The new system was designed to reduce the number of residue tests required by growers who apply high rates of chemical and reduce market restrictions as fruit held on vines until the residue level has broken down sufficiently for export.

A media release detailing the new link up was released by the NZKMB on 4 November 1987 (see Appendix 3). The topic was also outlined at the 1987 National Kiwifruit Conference (held annually for growers in conjunction with the New Zealand Fruitgrowers Federation), written up in New Zealand Kiwifruit, and detailed in a growers letter which contained the changes for their grower manual.

A further update in the form of a media release was circulated on 8 April 1988, detailing the two time-saving methods - testing by orchard block and the introduction of the new computer system at the NZKMB's Tauranga office - introduced to speed up maturity testing clearance procedures for the 1988 season. (see Appendix 4)

## PROJECT METHOD

The NZKMB's computer listing of 4778 growers was run off and from that a random sample of 191 growers was selected. This method allowed four percent of the total population of growers to be surveyed and ensured a satisfactory geographical spread through all New Zealand's kiwifruit growing areas was obtained. The randomness and geographical spread of questionnaires provided sufficient confidence in the results.

The questionnaire was posted out on Tuesday and Wednesday, 14-15 June and replies started trickling back by early the next week. All replies returned, including those received after 30 June 1988, were accepted.

Responses to the questionnaires were collated and the results totalled to provide assessable percentages. The results were conveyed to the NZKMB's Tauranga-based operations manager for consideration in preparing the 1989 season maturity testing procedures.

At an early stage, 15 minutes was decided on as sufficient time period to answer the questions. And it was also the amount of time that could be expected to be given up freely by growers at a busy time of the season.

In designing the questionnaire, suggestions were sought by consultation with several kiwifruit growers from throughout the country. This was done to ensure the questionnaire was both easy to read and quick to respond to.

In addition to consultation with growers, specialist advice on questionnaire design was sought from Tony Aldridge, a DSIR statistician. He agreed with the simplicity of the questionnaire, particularly the use of yes/no replies, from the outset and offered several suggestions which were incorporated into it. Those suggestions were :

- no numbering of questions or pages. This technique means the respondents have no "numerical" blocks to moving through the 15 questions and it allows them to "flow through" the questions readily and quickly achieve a sense of accomplishment.
- provide an introductory covering letter which explains the reasons for the survey, the system used to undertake it and a promise of results being returned to each respondent. In this covering letter, it was considered vital to assure growers that their individual responses would remain confidential.
- thanking the grower at the end of the questionnaire for taking the time to respond.
- providing an enclosed self-addressed envelope to prompt a quick response.
- ensuring there was adequate space to give a full reply to the questions which involved explanations.

The questionnaire was finalised after consultation with NZKMB executives Mike Howell, operations manager, and Steve Dohnt, senior technical officer.

## PROJECT DISTRIBUTION

As the results have been collated, they have been made available to the NZKMB's Operations division in Tauranga as reference for the evaluation and preparation of the 1989 testing procedures.

A summary of the results was published in the New Zealand Kiwifruit Journal, November 1988.

All growers who responded to the survey have been sent a copy of the results and offered the opportunity to request a full report of the survey's findings. (see Appendix 5)

A copy of the report has been issued to all eight members of the NZKMB board.

QUESTIONNAIRE RESULTS

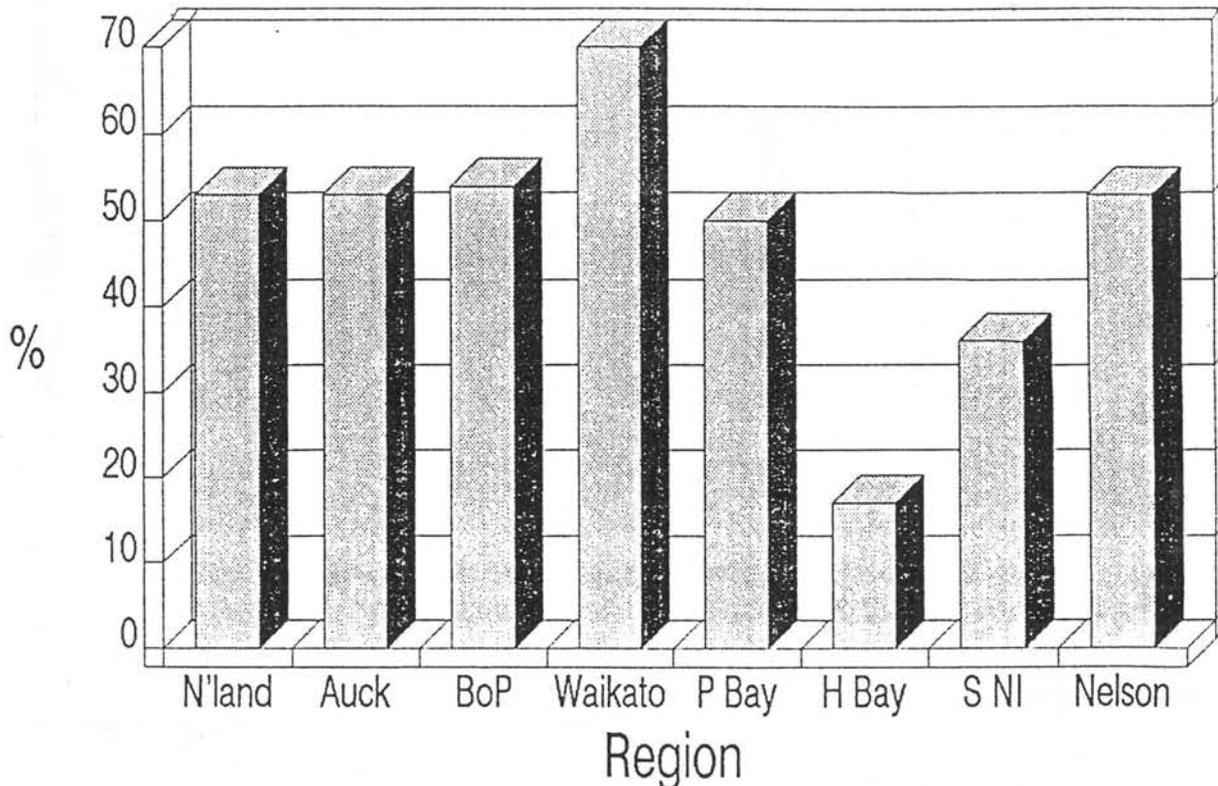
191 Questionnaires sent out; 102 replies; 2 invalid (both were not yet harvesting export grade fruit)

Response Rate 53%

Of the eight growing areas involved in the survey, the percentages of responses to the total number of questionnaires posted out was as follows:

<u>Region</u>	<u>No. posted</u>	<u>No. responded</u>	<u>%</u>
Northland	15	8	53
Auckland	19	10	53
Bay of Plenty	101	55	54
Waikato	10	7	70
Poverty Bay	10	5	50
Hawkes Bay	8	2	17
Southern NI	11	4	36
Nelson	<u>17</u>	<u>9</u>	53
	<u>191</u>	<u>100</u>	

Graph 1: Response rate  
– by region

**CONCLUSION**

1. The survey produced a favourable response rate from growers of 53%, despite being conducted at a busy time of the season. The 50% plus response rate was significantly higher than the 37% response rate achieved for the joint MAF/NZKMB Growers Financial Survey conducted for the first time in late 1987.

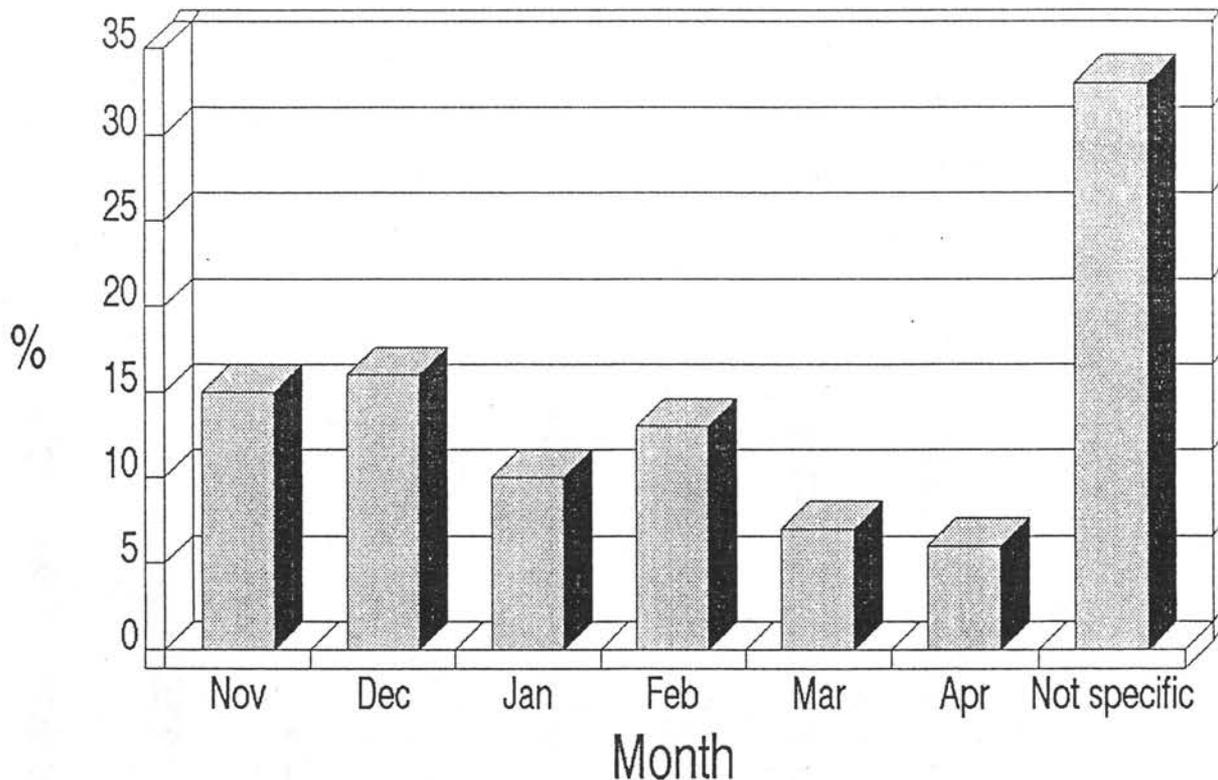
2. The response rate varied little between the major growing areas of Northland, Auckland, Bay of Plenty, Poverty Bay and Nelson, with all regions in line with the total response percentage. However a very high response resulted from the Waikato and a very low response from Hawkes Bay growers. The fact that the Waikato is a relatively new fruit growing area compared to Hawkes Bay could account for this.

- 1 In November 1987, the NZKMB announced the new procedures linking spray diary clearance with maturity testing. When did you first learn about the new procedures?  
In Nov/Dec/Jan/Feb/Mar/or Apr  
(circle one above)

RESULTS - by percentage

Nov 15, Dec 16, Jan 10, Feb 13, Mar 7, April 6, Not specific 33  
TOTAL = 100%

Graph 2: Knowledge of new procedures  
— by month



#### **CONCLUSION**

1. It was encouraging that 31% of the respondents had learned about the new testing procedures by the end of December 1987 and that well over half (54%) learned about the changes by the end of February 1988, well before the 1988 harvesting season got underway.

A significantly high percentage, 33% of respondents, did not specify which month they learned about the procedures. It should not be concluded that they did not know about the changes before the season, but that they were unable to specifically recall the month.

- 2 How did you FIRST learn about the new procedures? Underline your answer from the selections in a) to l) below.

AND you may have learnt about the procedures from other sources as well. Circle the appropriate answers - there may be more than one.

- |   |        |
|---|--------|
| a) from your local newspaper                        | yes/no |
| b) from local radio or Rural Report                 | yes/no |
| c) from your growers' manual letter                 | yes/no |
| d) from the NZ Kiwifruit Journal                    | yes/no |
| e) from the annual Kiwifruit Conference in Nov 1987 | yes/no |
| f) from your local Fruitgrowers Federation meeting  | yes/no |
| g) direct from your NZKMB field service officer     | yes/no |
| or the new NZKMB maturity testing video             | yes/no |
| or at a packhouse meeting                           | yes/no |
| or at an orchard meeting                            | yes/no |
| h) from kiwifruit growing friends                   | yes/no |
| i) from your neighbour                              | yes/no |
| j) from your exporter representative                | yes/no |
| k) from a MAF officer                               | yes/no |
| l) from another source/s - please specify           | yes/no |

**RESULTS** - by percentage

Underline where first learnt:

- a 1  
 b 1  
 c 21  
 d 4  
 e 0  
 f 0  
 g - FSO 1; Video 0; Packhouse 2; Orchard 0;  
 h 1  
 i 1  
 j 1  
 k 0  
 l 0  
 No reply 67  
 TOTAL = 100%

**CONCLUSION**

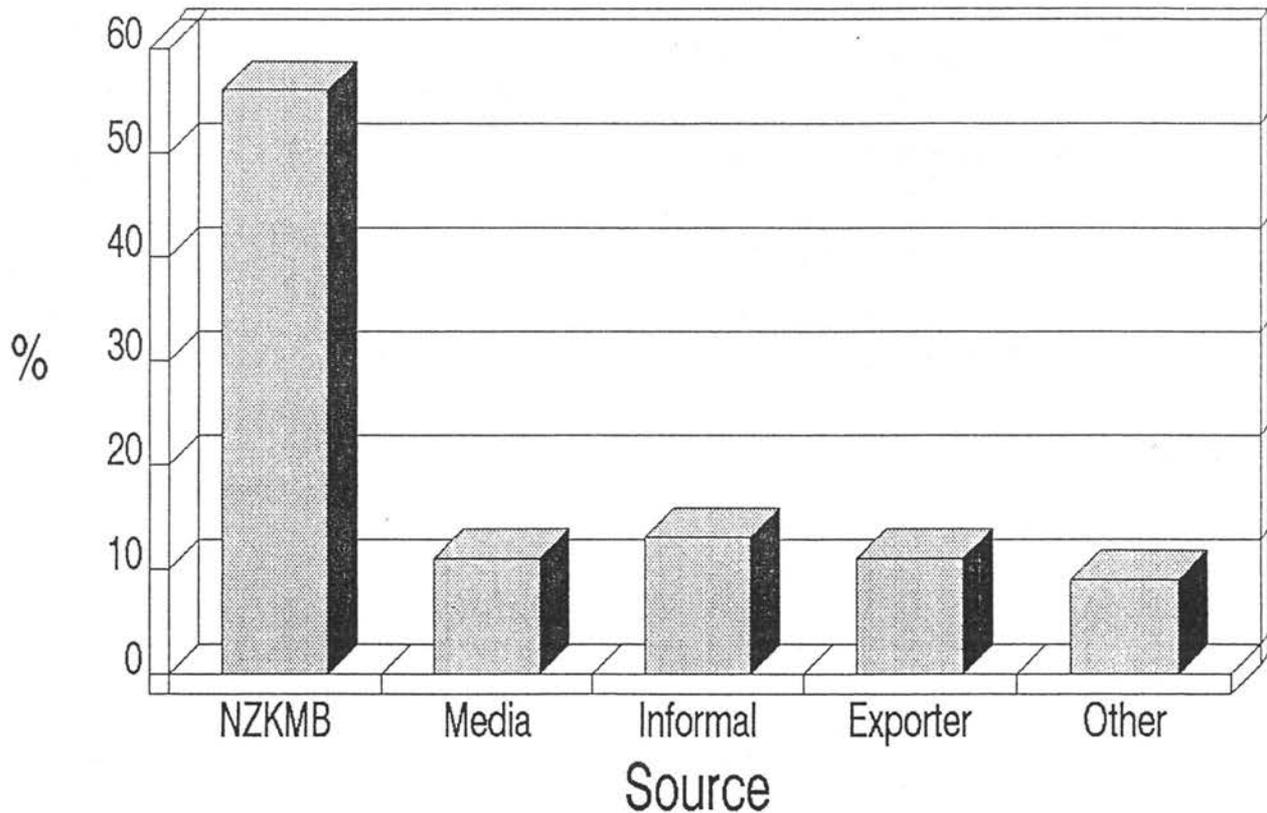
1. Question 2 attempted to find out where the new procedures were first learnt from and then how many other sources they were learnt from. The very high 67% no reply rate to the first part of the question suggests the time period of about six months before the survey was sent out was too long to provide any reliable answers. However, details of the procedures presented in NZ Kiwifruit Journal (21%) and the growers' manual letter (4%) were by far the most popular vehicles for first conveying the information.

**RESULTS**

Other sources: - by no. of responses

- a 21  
 b 8  
 c 46  
 d 52  
 e 2  
 f 7  
 g - FSO 7; Video 7; Packhouse 13; Orchard 3  
 h 17  
 i 11  
 j 24  
 k 1  
 l 2 (packhouse)  
 No reply 1  
 TOTAL = 222 responses

## Graph 3: Information source



### **CONCLUSION**

1. Despite the poor response to the first section of question 2, growers willingly gave answers to the second half of the question.

2. The provisions taken by the NZKMB to inform growers directly about the procedure changes achieved a 56% response rate from the survey respondents. The most popular source was the New Zealand Kiwifruit Journal, closely followed by the letter to growers which accompanies the updated information for each growers manual. Packhouse meetings held by KZKMB, the maturity testing video prepared for growers and packhouses (and supplied at a small cost), and direct contact with field service officers were also important sources.

3. Attempts to convey the information via the local newspapers in growing areas and rural radio programmes met with a 13% response rate. There was some criticism (see question 3) that the procedures were not fully explained in the media. This response was expected as the media considers such information as a short news story to alert and inform growers of upcoming changes. More detailed information should then be provided by the NZKMB explanations.

Essentially that programme of events happened when the 1988 procedures were announced and the survey responses indicate that was successful.

4. Informal communications (11%) between growers, their friends and neighbours also showed up as a significant source. This result comes as no surprise given the traditional flow of information in conversations over the farm gate, at the local pub and at local sports and social functions in rural areas.

5. Exporter representatives (11%) also served as a significant source in relating information on the procedures to the survey respondents. With major changes to the kiwifruit industry's structure in 1989, that factor will have to be addressed through the field staff via the Operations division.

6. The industry meetings, both the annual Kiwifruit Conference in November 1987 (0.9%) and the local Fruitgrowers Federation meetings (3%) were less popular sources of this information.

- 3 If you learnt about the procedures from the public media, (ie. not the NZ Kiwifruit Journal) were they adequately explained? yes/no

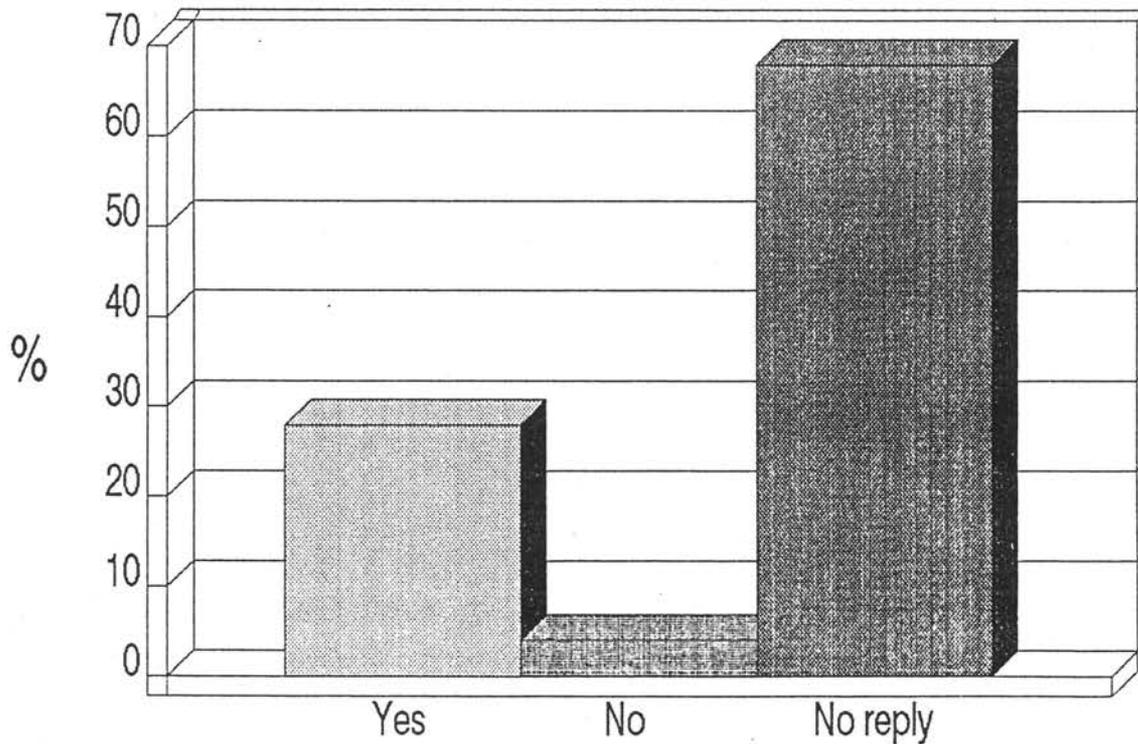
### RESULTS

Yes 28; No 4; No reply 68;  
Total = 100

#### If no, why were they unclear?

- "not explained enough"
- "not enough details on the changes being made"
- "depressed by the industry, done no reading"
- "not as clear as the NZKMB video"

Graph 4: Adequate explanation in media  
– by response



### CONCLUSION

Several growers commented that the local newspapers did not provide sufficient details of the procedures. This point is explained under question 2.

4 If you learnt about the procedures from the NZ Kiwifruit Journal, were they adequately explained  
yes/no

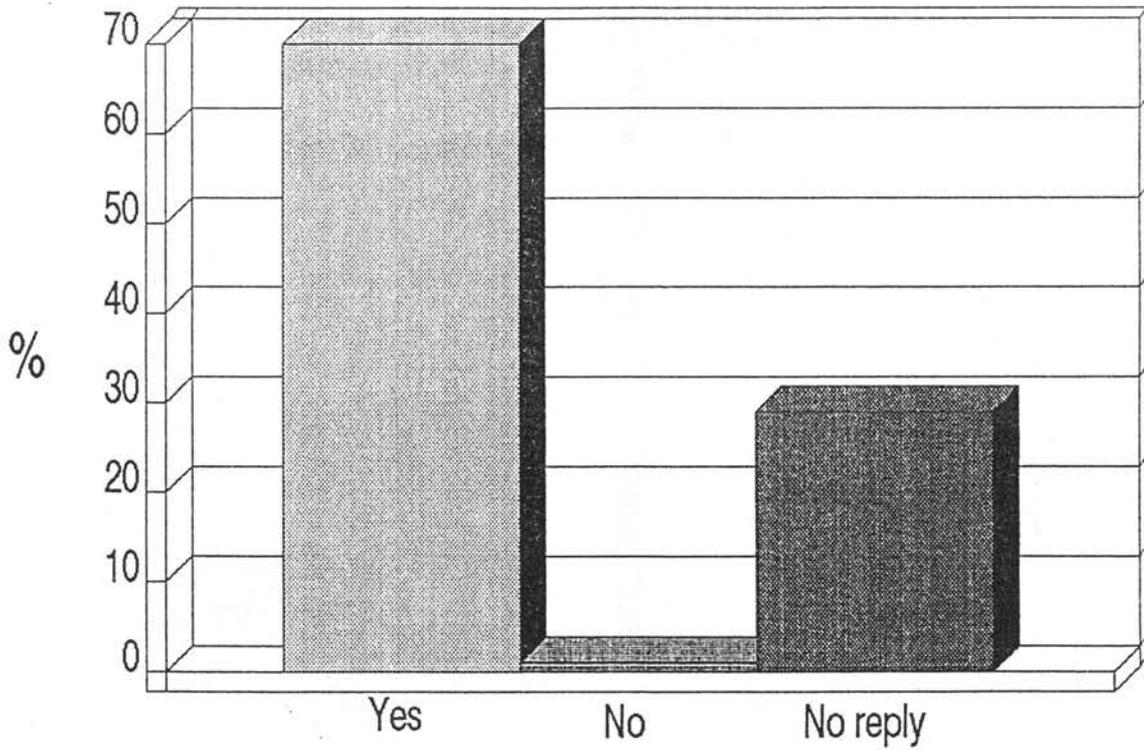
**RESULTS**

Yes 70; No 1; No reply 29;  
TOTAL = 100

If no, why were they unclear?

- no replies

**Graph 5: Explanation in Journal**  
– by response



**CONCLUSION**

1. As per question 5, see over.

- 5 Were the procedures adequately explained in the covering letter sent with the amendments to NZKMB growers' manual? yes/no

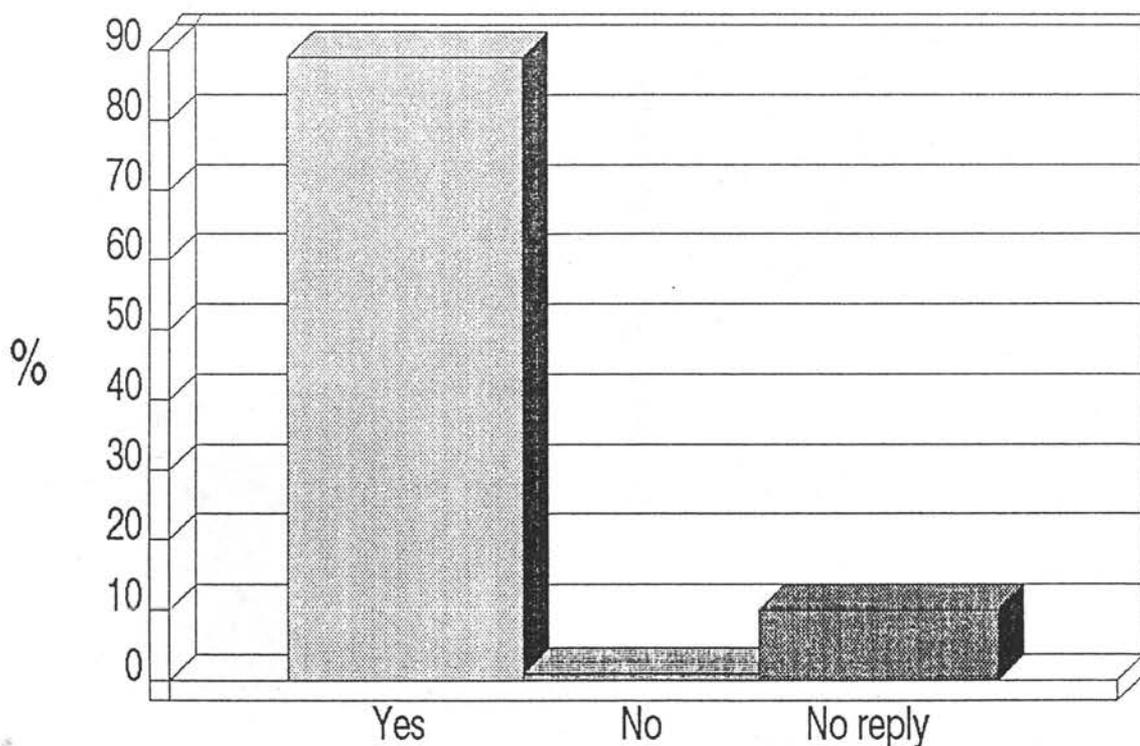
### RESULTS

Yes 89; No 1; No reply 10;  
TOTAL = 100

If no, why were they unclear?

- "Didn't receive a copy"

Graph 6: Explanation in growers' letter  
– by response



### CONCLUSION

1. The survey respondents gave a very positive response to questions four and five which asked whether the procedures were "adequately explained" in both the Kiwifruit Journal and the growers' manual letter. Results of 70% and 89% "yes" respectively, indicate the success of these two methods of communication.

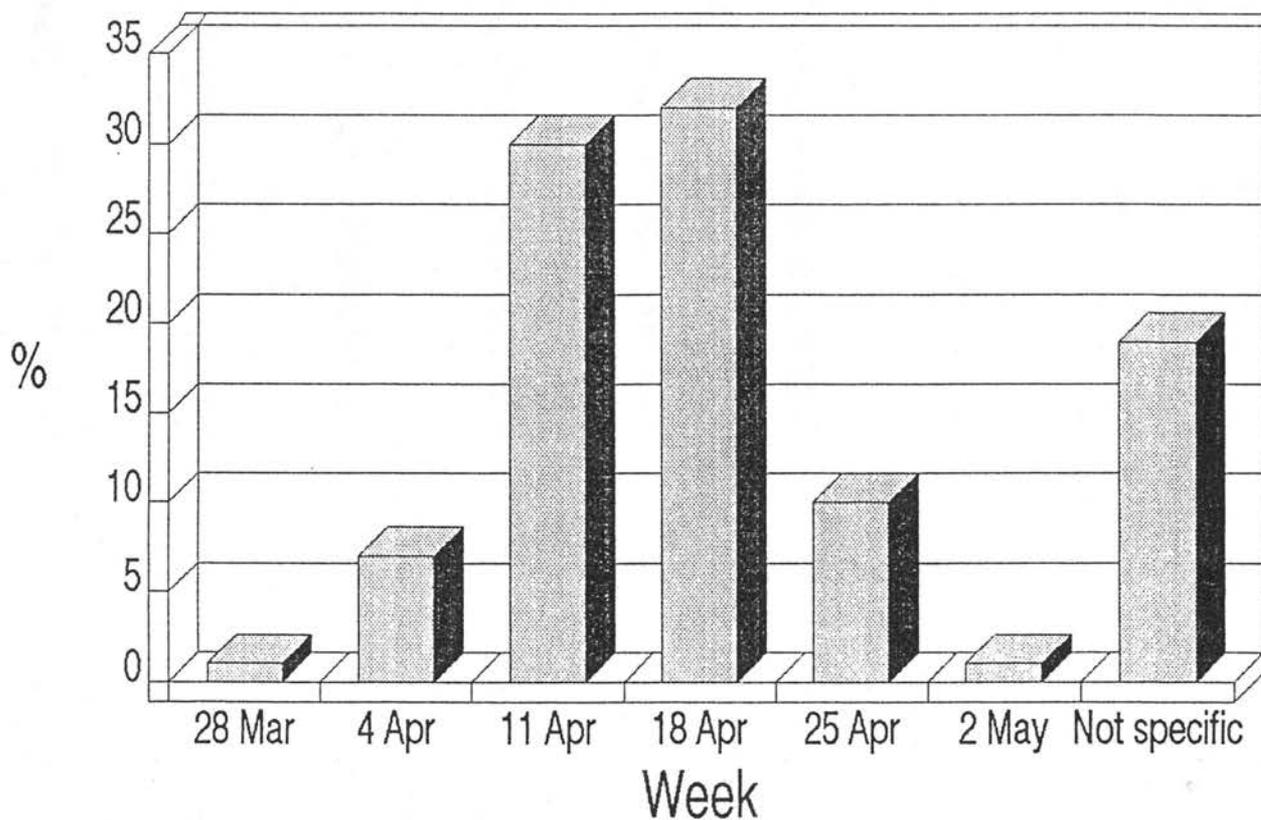
## 6 What date did you send in your spray diary for clearance to NZKMB's Tauranga office?

**RESULTS** - by percentage

Specific dates:

28 March - 3 April	1	
4-10 April	7	
11-17 April	30	
18-24 April	32	
25 April - 1 May	10	
2-8 May	1	
Not specific	19	
TOTAL	100	%

Graph 7: Date spray diary posted  
– by week

**CONCLUSION**

1. Some 72% of replies sent their spray diary into the NZKMB between 11 April and 1 May with the busiest period being the two weeks up until 24 April. A further 19% were not specific about the date of their diary being sent in, or could detail the month only.

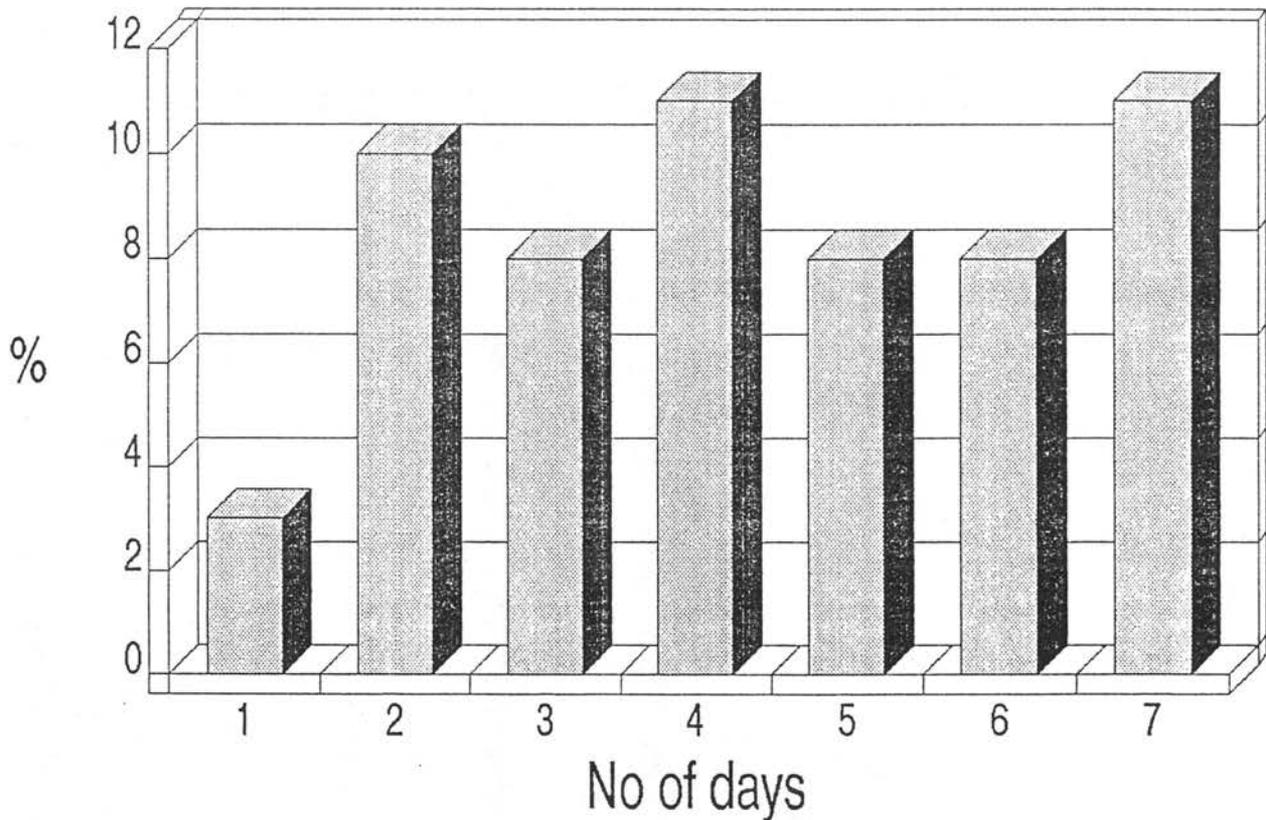
2. See question 7.

7 What date did you receive your spray diary clearance or notification from your exporter/NZKMB?

**RESULTS** - by percentage

No. of days specified 83; not specified 17;  
TOTAL = 100%

**Graph 8: Spray diary clearance time**  
– by number of days



**CONCLUSION**

1. 83% of growers detailed specifically the number of days it took to get their spray diary cleared by the NZKMB and the clearance given either by the NZKMB or their exporter. Of that 83%, 59% received clearance within seven days, with the following results broken down.

No. of days (by percentage)

1	2	3	4	5	6	7
3	10	8	11	8	8	11 = 59%

2. Questions 6 and 7 were included in the survey in an attempt to find out how many days were required to clear spray diaries through the NZKMB's new computerised audit system. In both questions, over 80% of respondents were able to provide the specific date on which their spray diary was posted for clearance and the day that clearance was received.

3. The NZKMB undertook to process and audit all spray diaries within 48 hours of receipt but the survey could not fully determine the success of that undertaking because the mailing factor was not addressed. However, almost 60% of the respondents who did specify the number of days the exercise took received their clearance within seven days and this included mailing it to the NZKMB's Tauranga office and back again.

- 8 Did you have any problems making contact with the NZKMB to request your maturity clearance? yes/no

**RESULTS** - by percentage

Yes 5; No 94; No reply 1;  
TOTAL = 100%

If yes, was action taken by the NZKMB in reasonable time? yes/no

Yes 4; No 3

If no, what was the problem?

- "computer delays for two days"
- "problems with maturity tester arriving, contacted Saturday and finally arrived Monday afternoon"
- "telephones engaged, turn around took nine days, harvest delayed half a day and Field Service Officer visited orchard reluctantly"

**CONCLUSION**

1. 94% of the replies indicated there was no problem in making contact with the NZKMB to request a maturity clearance.

2. The ability of growers to contact the NZKMB representatives in their local region to request a maturity test is very good.

- 9 Did you have any problems getting your maturity clearance certificate issued? yes/no

**RESULTS** - by percentage

Yes 8; No 90; No reply 2;  
TOTAL = 100%

If yes, what was the problem?

- "too slow by post, QAFO phoned through and wrote up result to follow"
- "address not correct as marked on spray diary"
- "FSO failed to show up, took two telephone calls and one turned up a week later"
- "service priority must be given to growers who go through packhouse first each season"
- "error in testing but was immediately rectified"
- "a weekend caused a hold up"
- "communicated with office and still four days delay"
- "had to retest even though we had another fruit sample from the adjacent block in the maturity area"

**CONCLUSION**

1. 90% growers had no problems getting maturity clearance certificates issued on time. Of those that did, the problems were rectified in a reasonable time.

10 Was your fruit cleared for export to all markets? yes/no

**RESULTS**

Yes 95; No 4, No reply 1 (Bola);  
TOTAL = 100

If no, was it subsequently cleared by NZKMB or residue testing? yes/no

Yes 2, No 1, No reply 1

- "not cleared for North American market because part of orchard sprayed with chlorethephon"

**CONCLUSION**

1. Only one grower in the survey was unable to sell his crop to all markets.
2. The "no reply" response came from a Poverty Bay grower who did not harvest his crop due to the effects of Cyclone Bola.
3. The high positive response rate to this question suggests that respondents are keenly aware of the importance of adhering to the recommended chemical and spraying programmes devised for the kiwifruit industry by MAF and updated annually. The importance of adhering to this programme is continually stated by the NZKMB and any detectable deviation found as fruit residues in overseas markets could have dire long-term implications for the whole industry.

11 Was your fruit delayed from harvest because of deviations found during the spray diary audit? yes/no

**RESULTS** - by percentage

Yes -, No 99, No reply 1 (Bola);  
TOTAL = 100%

**CONCLUSION**

1. The respondents clearly stated there was no delays in harvest caused by deviations in spray applications. The same comments mentioned in 8 above apply to this question.

- 12 Do you think the 1988 spray diary clearance/maturity test procedures were practical to implement?  
yes/no

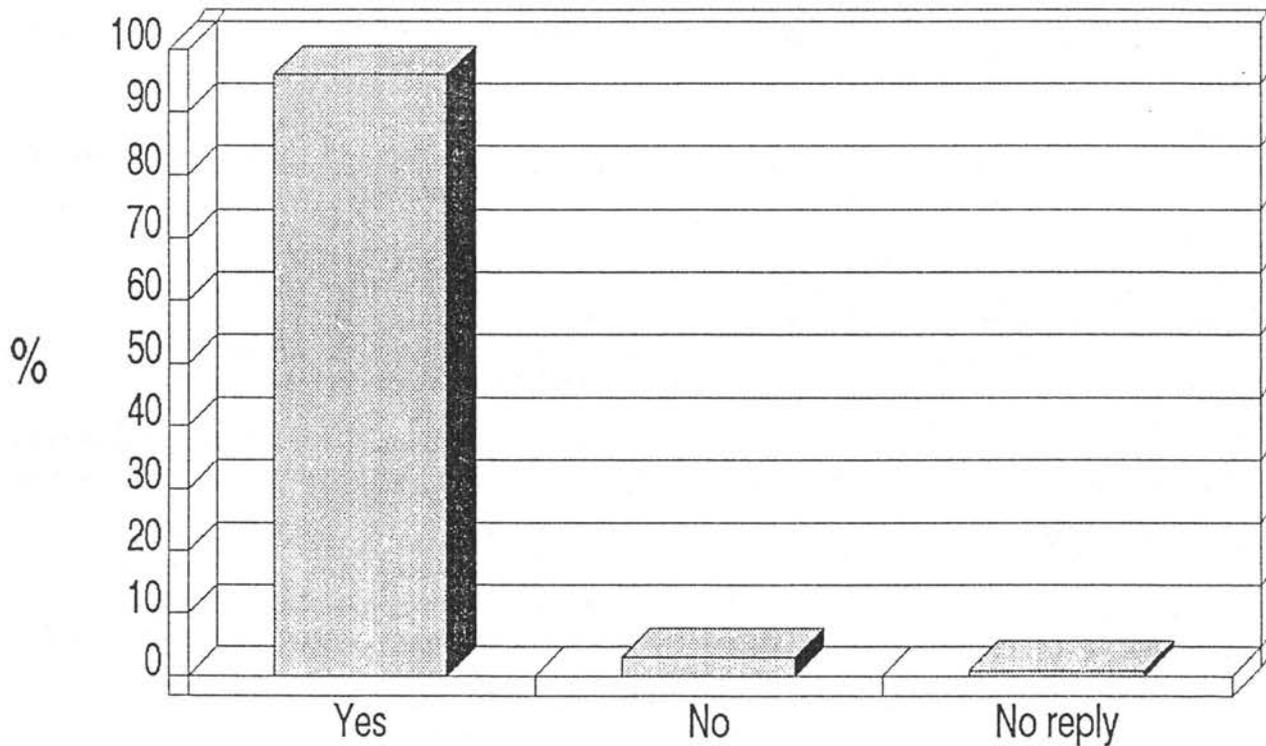
**RESULTS** - by percentage

Yes 96; No 3, No reply 1 (Bola);  
TOTAL = 100%

If no, why not?

- "system too inflexible early in season, often delays of 12-24 hours"
- "problem with computer deciding if maturity areas are the same as the spray diary audit certificate block numbers"
- "uncertainty of relationship between Brix level, timing of last insecticide spray and packhouse accepting fruit for packing"

**Graph 9: Procedures practical**  
— by response



**CONCLUSION**

1. 96% of growers in the survey said the procedures were practical to implement.

### 13 How do you think the test procedures system could be improved?

#### RESULTS - by percentage

Reply 55; No reply 45;  
Total = 100%

Of the replies - 30 mentioned they had "no problems"

A summary of the replies for improvements is listed below:

- "auditing could be done in local growing areas without having to send off information to Tauranga"
- "establish a system of putting grower numbers on gateways to assist maturity tests (as per dairy industry)"
- "should select same date each year to pick fruit from old records"
- "phone clearance for honest, reliable growers with previous good histories"
- "maturity tester should be appointed by packhouses to improve service with NZKMB and give priority to first suppliers, with NZKMB doing only random tests"
- "system devised so auditors can clear fruit on spot"
- "conditional clearance at 6.00 Brix but restricted to packing after seven days to allow fungicide to be sprayed and to allow packhouse to know when fruit will be available. This would be better than 6.20 level when packhouses are screening out for fruit"
- "make provision to include the date the maturity test taken so follow up readings can be rationalised"
- "nominated packhouse could be mailed duplicate of spray diary clearance certificate"
- "wants permission to test young and old blocks together and the clause re boundary being an empty block removed so more areas can be cleared at once"

#### CONCLUSION

1. 55% of respondents gave a reply, with 55% of those positive replies indicating there were "no problems" with the procedures and the remaining 45% offered constructive comments.

2. Of those requesting improvements, several wanted growers to be given greater responsibility for their own testing and work in closer liaison with their packhouse to streamline the system even further. Many replies indicated that packhouses should provide a trained staff member to work specifically with growers to undertake maturity testing procedures. And in so doing, reduce the role of the NZKMB who currently employ maturity auditors and maturity receptionists, on a seasonal basis, to complete the task and liaise with growers.

3. It is recommended that consideration be given to increasing growers' responsibility for their own fruit in this area and also increase the role of packhouse personnel in the activity. NZKMB staff would still be required to give the "go ahead" signature before a maturity test clearance could be released.

This recommendation is backed up by the results of two pilot cases undertaken during the 1988 season. In Taranaki, successful liaison with growers over the procedures was achieved by the NZKMB working in a supervisory capacity with the region's seven packhouses. Under the arrangement, the maturity auditor acted as an overseer to ensure all aspects of the tests were inline with the NZKMB guidelines. The other successful scheme was carried out with an Opotiki packhouse which packed about one million trays provided by 80 growers.

- 14 Do you think the new procedures were conveyed to growers early enough before the 1988 season?

yes/no

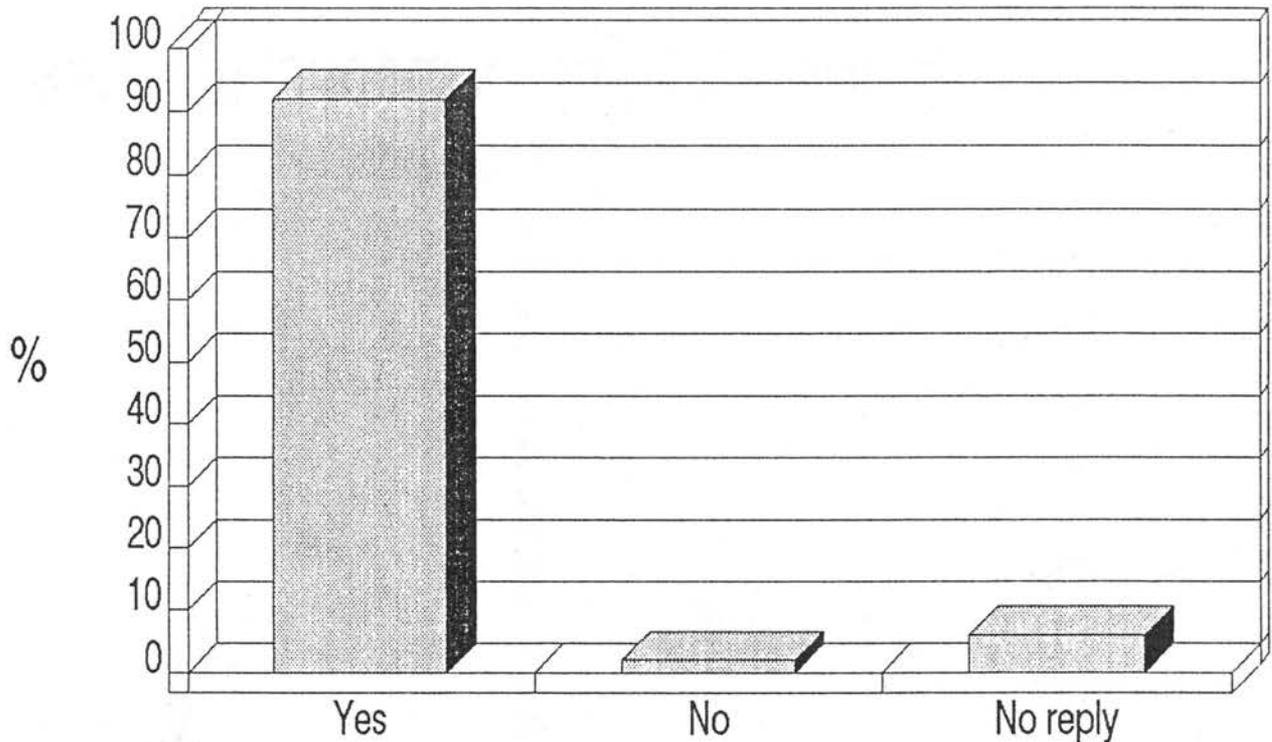
**RESULTS**

Yes 92; No 2, No reply 6;  
TOTAL = 100

If no, how much earlier should they be made available?

- "any changes need to be made as soon as possible pre-season and given lots of publicity"
- "only clear after attending NZKMB packhouse meeting"

**Graph 10: Procedures early enough**  
— by response



**CONCLUSION**

1. 92% of growers were satisfied that the last procedures were conveyed early enough before the 1988 season. The negative responses did not suggest that the procedures were not conveyed early enough.

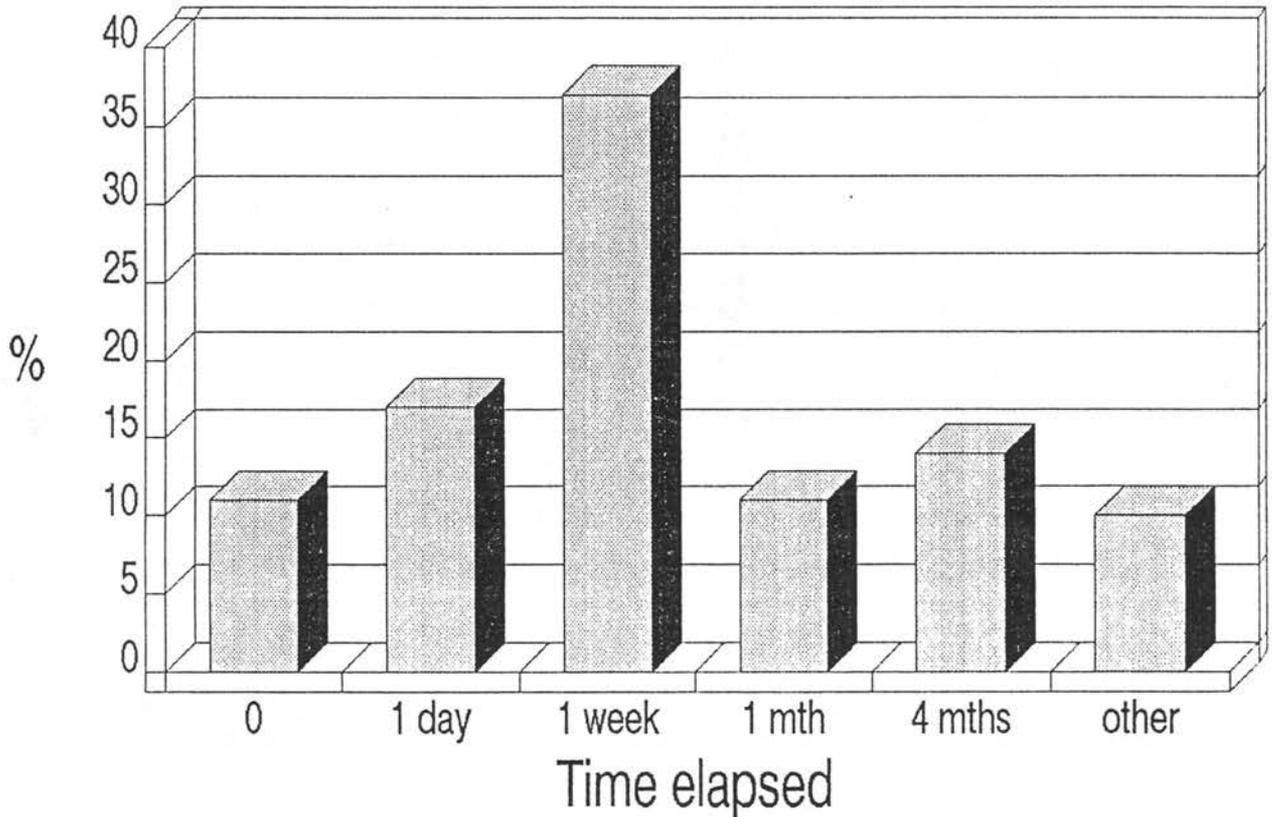
15 When you received your growers' manual update letter outlining the new procedures, did you read & file it -

- |  |        |
|--|--------|
| a) immediately                           | yes/no |
| b) the same day                          | yes/no |
| c) the same week                         | yes/no |
| d) the same month                        | yes/no |
| e) after 1 Jan 1988                      | yes/no |
| f) before you sent off your spray diary? | yes/no |
| g) haven't filed it yet                  | yes/no |

**RESULTS** - by percentage

a	11	
b	17	
c	37	
d	11	
e	11	
f	5	
g	4	
Not specific	6	
TOTAL	<u>100</u>	%

**Graph 11: Filing of manual updates**  
- by time elapsed



**CONCLUSION**

1. 65% of growers responded by saying their manual letter was read and filed within a week of receiving it. That suggests evidence of good record keeping practices are adopted by the majority of growers.

ACKNOWLEDGEMENTS

The New Zealand Kiwifruit Marketing Board for giving permission to undertake the survey on their behalf, for the resources and services provided through consultation and secretarial support.

In particular, I give sincere thanks to chief executive Simon Caughey, board secretary Dr Susan Macken and secretaries, Annette Brown and Claire Freeman.





# NEW ZEALAND KIWIFRUIT AUTHORITY

FIELD SERVICE DIVISION, 82 DEVONPORT ROAD, P.O. BOX 1048, TAURANGA, NEW ZEALAND.  
TELEPHONE (075) 87-032 or 88-143. TELEX: KIWIFSD 63630. FAX: (075) 88-719

4 May 1987

TO ALL KIWIFRUIT GROWERS

## MATURITY TESTING PROCEDURES

The NZKA has re-examined the maturity testing procedures introduced for the 1987 season. There would appear to be a greater variability in the results (particularly in the case of younger vines) as against that expected. The reason for this could be a result of seasonal factors or that similar results in respect of younger vines are being experienced as under the previous (pre 1987) maturity testing procedures. With respect to mature vines the rise in maturity levels are approximately in line with expectations but this will not be substantiated until the end of the current week.

The NZKA considers the new test to be more appropriate in accurately determining maturity levels but acknowledges the variability in young vines. The Authority is also concerned at the confusion and lack of understanding by growers as to the reasons for the introduction of the new system and the difference in the sampling and testing procedures from the previous procedure to the new procedure.

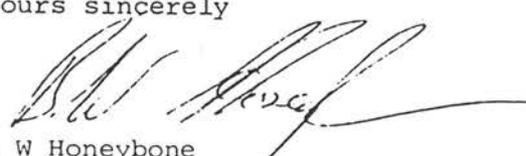
Following its deliberations and taking into account the effect on the industry if there is an unforeseen delay, the NZKA has resolved:

"That the new maturity testing procedure as set out in the growers manual will remain in position.

However growers may take the option of testing their fruit under the old system of maturity testing (a copy of which is attached) and having their orchards cleared in accordance with the requirements of that procedure. Growers choosing that option will be required to notify the NZKA maturity receptionists that they wish to take up this option and the maturity auditors will conduct their audits accordingly.

This decision will allow the NZKA, in conjunction with its research consultants and technical staff to monitor what has occurred during the current season. The resulting data and the research material from previous seasons will be reviewed and the industry advised of the results together with the procedures which will be adopted for the 1988 season.

Yours sincerely

  
B W Honeybone  
CHAIRMAN

BWH:ba0



# Move Aims To Ease Kiwifruit Test Row

The kiwifruit industry is angry about testing procedures which are claimed to be costing export sales.

The Kiwifruit Authority has given growers the option of choosing either of two methods of maturity-testing their fruit.

The marketing director of the Auckland exporting company Kiwi Harvest Ltd, Mr John Wittus, said yesterday that the authority had been asked by the Kiwifruit Exporters' Association to drop the new method of testing in favour of the old system, because variations were apparent which were causing delays in picking.

The authority said it would not drop the system, which was introduced this year, and involved testing a portion of the stem end of the fruit.

The old system involved testing juice from both ends of the fruit and averaging it.

But yesterday the authority decided to reintroduce the old system to be used as well as the new.

Mr Wittus said the four or five days leading up to the authority's decision to offer a choice of method had cost growers and Kiwi Harvest Ltd a lot of money, because the vines were not testing high enough for picking using the new system.

"We have six ships sitting empty around the ports waiting to export the kiwifruit and it is costing around \$10,000 for every day they remain there," he said.

The chief executive officer for the authority, Mr Simon Caughey, said that the authority had declined to drop the new test because it did not believe there was enough indication at that stage that the testing of mature vines would bring delays.

"The young vines are a small percentage of the total crop — it would be below 10 per cent."

Mr Caughey said the authority wanted to do more "in-depth monitoring" of the new testing method by having both systems in operation.

# Kiwifruit crop testing claim denied

THE chairman of the New Zealand Kiwifruit Authority, Mr Bruce Honeybone, yesterday denied the introduction of a new form of Brix test had affected the start of picking of the main crop.

The marketing director of Kiwi Harvest, Mr John Wittus, claimed earlier this week that delays in authorising a change to allow use of the old test had held up the start of picking the naturally ripening crop.

Early maturing fruit treated with Ethrel has already been picked.

Mr Honeybone said that when Kiwifruit Exporters Association applied last week for use of the old test there was no evidence that picking would be delayed as an average start round May 7 and 8 was expected with mature vines.

## Younger

The fruit affected was from the younger vines and results of Brix tests could have been unfluenced by seasonal factors.

Mr Honeybone said he believed Mr Wittus had over-reacted and that the NZKA had made its decisions on facts.

The quality standards committee had made the decision on the new test.

"It was an industry decision aimed at promoting greater confidence on export markets that the fruit was up to the highest standard," Mr Honeybone said.

## Variability

"It was a simpler and more accurate system. The old test gave a degree of variability, particularly with younger vines.

"The new test was extensively trialled and results indicated it was a good system."

Exhaustive tests over the weekend indicated that if there was another week's delay there could be a problem.

"In the interests of the industry it was decided to give growers the option of tests," he said. "We notified them we would do extensive tests through the season and advise growers at the end what the procedures would be in 1988."

Mr Honeybone said the authority was concerned at the confusion and lack of understanding by growers about the reasons for the introduction of the new system and the difference in the sampling and testing procedures between the two systems.

The authority had con-

fidence in the new test, which more accurately determined maturity levels.

A greater differential had appeared in results, specially in the case of young vines, but this could have been because of seasonal factors. The old system had also given variable results with young vines.

Commenting on Mr Wittus' claim that ships had been delayed waiting for fruit, Mr Honeybone said exporters had to judge when the start of the season would be. The season generally ran from April 25 to the middle of May.

TE PUKE TIMES 6 MAY 1987

# Authority acts to protect international trading relationships

International trading relationships and arrangements would be seriously affected if the delay in harvesting kiwifruit had been allowed to continue, says New Zealand Kiwifruit Authority chief executive Simon Caughey.

Speaking to the Te Puke Times this week Mr Caughey was justifying the Authority's decision to backtrack on its earlier advice to growers to test kiwifruit under a new Brix testing method advised by the DSIR.

Exporters became critical of the new Brix method last week saying it was delaying the picking of young vines which are usually the first to be harvested.

## No reason

The Authority initially told the exporters that there was no reason to revert to the old system, but, af-

ter further testing last weekend of a small quantity of orchards through the Bay of Plenty Fruit-packers, the Authority changed its mind and decided to agree to the exporters' demands.

On Monday the Authority sent a letter to all licenced exporters giving growers the choice of using either the new Brix test or the old system.

"We have a very extensive marketing programme through the world and if we started to delay the harvest seven to eight days we would have fruit late into the European markets and therefore delayed selling," says Mr Caughey.

## Major disruption

"During the weekend we still feared that the new system was in some instances producing variances of .7 of a per cent which, if continued would delay harvesting considerably and could cause

major disruption on shipping programmes and international markets."

However, having bowed to the pressure from exporters and granted growers the option in their Brix testing, Mr Caughey says he believes the whole issue to be "a storm in a teacup" fuelled by one small exporter who, although only handling five per cent of the total export crop, made "outlandish comments" that resulted in sensational reporting of the harvest delays.

"One exporter may have been trying to be smart and have his shipping here early. That's his problem and his cost," says Mr Caughey.

"None of the major exporters that have 25 per cent of the trade have been complaining."

## Fooled

Mr Caughey says he believes people have been fooled into think-

ing that this year's season was going to be early when in fact it is on time.

While the new Brix test method was advised by the DSIR as a far more accurate assessment of the readiness of fruit for harvest, Mr Caughey says the Authority was concerned in recent days that not enough allowance had been made for climatic problems experienced during last week with the mild weather.

"This season we will be conducting extensive testing on the new system to compare it in more detail than previously achieved with the old," he says.

"However, we are certainly not backing off from the new system. We follow the DSIR. They have carried out exhaustive tests and we believe through the Quality Standards Committee that the new test is better and will be used in the future."

EDITORIAL

# A FULL EXPLANATION IS NEEDED

By the time kiwifruit growers read this, their 1987 crops will be off the vine and in coolstore, if they haven't already left for overseas markets. But the maturity test issue will still be up for discussion and speculation will continue until the Kiwifruit Authority finally announces what procedure will be adopted for 1988.

Whatever is decided, the authority must take some flak for their last minute decision change when some exports were already on the water. In the letter from authority chairman Bruce Honeybone to all kiwifruit growers on 4 May 1987, he stated: "The Authority is also concerned at the confusion and lack of understanding by growers at why the reasons for the introduction of the new system and the differences in the sampling and testing procedures from the previous procedure to the new procedure."

A wordy sentence certainly, but one that contains a clouded admission to the authority's poor public relations exercise in getting the essential reasons for the test change across to growers. Well explained, the confusion should not have happened.

However the authority did take valid steps to get growers in the picture — the changes were outlined

in the authority's *New Zealand Kiwifruit* journal early enough and presented in the maturity testing section of the growers annual.

Once in the hands of growers, it is up to them to read such instructions and file them in the manual.

It's a bit like the foamboard packaging issue which frustrated the industry back in March — growers must

learn to take the ultimate responsibility for their crop before it leaves the orchard gate.

The authority also needs to be questioned on the new test method and why it accepted it without ensuring the method was beyond question. If the maturity levels have been variable this season, it's very likely they were last season as well. Young vines (in their 2-4th year after grafting), densely planted vines and fruit treated with ethrel to be shipped as early harvest fruit caused the major variation in readings this season.

So did the authority's quality standards committee accept the new DSIR designed test without sufficient investigation? Glen Hopkirk, one of the DSIR scientists involved with establishing the new procedure, maintains the new test "does all it sets out to do". So it's assumed the original objective of establishing a more precise test method to reduce the variability of Brix readings must have been met if the authority decided to adopt it this year.

Growers aren't required to know the specific scientific details, but a full explanation as to why the change was necessary is a major step in getting it accepted and functional on the orchards.



# NEW ZEALAND KIWIFRUIT AUTHORITY

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## APPENDIX 3

MEDIA RELEASE

4 NOVEMBER 1987

File Ref 2-M-01

### SPRAY DIARY AND MATURITY TEST CLEARANCE NOW LINKED

Kiwifruit growers will be required to take greater responsibility for their spray diary clearance and fruit maturity test under new guidelines, which link the two vital steps, passed by the Kiwifruit Authority's November board meeting.

From the 1988 season onwards, no maturity test clearance will be given to a grower until the Authority's maturity auditor is informed that the grower's spray diary has been received and cleared by the Authority.

This action has been taken to ensure no export kiwifruit will leave New Zealand without first being audited for spray application. The new system should also reduce the number of residue tests required by growers who apply high rates of chemical and reduce market restrictions as fruit will be held on vines until the residue level has broken down sufficiently for export.

"Increasing international concern over residue levels in food makes the new guideline a logical step to protect the New Zealand kiwifruit industry", says Simon Caughey, the Authority's chief executive officer. "There is no way the industry can afford to be excluded from world markets because of residue problems and growers must take head of increased vigilance overseas on the chemicals issue".

...mtc

spray diaries....2

To achieve a rapid clearance of spray diaries through the Tauranga office the Authority requests that growers send in the top copy of their diaries for clearance immediately after the last pesticide application. The Authority has undertaken to guarantee diary clearances within 48 hours of receiving them and once passed, the grower number will be placed on the maturity register.

Exporters will be informed daily of growers who have passed the spray diary clearance procedure. If problems arise, both exporter and grower will be contacted and both parties will be required to liaise to solve the problem. A maturity test will then be given and once that maturity test is passed, the grower will be issued with a clearance certificate.

Each certificate will show the withholding period required before harvest can be undertaken and any market restrictions which may apply. Any grower who wishes to deviate from the recommended spray programme must first apply to the Authority and only when permission is given should the pesticide be applied.

If any spray deviations are evident during a diary's audit, exporters will have to get permission from the Authority to export the fruit. Before doing so, residue tests will be required at a cost to the grower and harvesting may be delayed.

If residue limits have been overstepped, fruit will not be exported and in following years special audit procedures, which include residue testing, will apply to errant growers.

....mtc

spray diaries....3

Responsibility for the efficiency of the new system also lies with packhouse operators who will be unable to begin packing fruit until they have received a copy of the maturity clearance certificate from either grower or exporter.

ends

For further information contact:

Simon Caughey  
Chief Executive Officer  
New Zealand Kiwifruit Authority  
Telephone (09) 799-913





# NEW ZEALAND KIWIFRUIT AUTHORITY

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## APPENDIX 4

MEDIA RELEASE

8 APRIL 1988

### TIME SAVING METHODS INTRODUCED FOR MATURITY TESTING

Two new time-saving methods have been introduced to speed up maturity testing clearance procedures for the 1988 kiwifruit season.

The first change relates to testing fruit in the orchard. Instead of having to test every individual block in the orchard, clearances will only be required for maturity areas within the orchard.

These maturity areas are defined as being a continuous area, made up of neighbouring blocks, of uniform topography containing vines of the same age growing on one type of support structure (either T-bar or pergola) and which have, in past seasons been known to mature at the same time.

Under the new system, growers with large orchards will have fewer areas to test and in the case of small orchards, some may only require one maturity test.

The second change involves the introduction of a computer system at the Authority's Tauranga office to speed up the information flow. Details of every registered grower's orchard, ownership and location will already be stored in the computer.

pto

page 2

So when ringing in with details of maturity testing, growers will only have to provide the owner's name, MAF registration number, the name of the person who carried out the maturity test, the block details and the results of the test to the telephone receptionists.

The maturity testing procedure used this season will be very similar to the old test used in 1986. The only change will be that the fruit sample must include 10 fruit off 10 different vines within each sample block, with each fruit picked at shoulder height or higher, from one metre along a lateral which grows one metre along the main leader from the trunk. Juice from both ends of the fruit will be tested this year.

Using this method, fewer fruit will be required for testing and this will provide a saving for growers. Each fruit should be representative of the fruit on the whole vine. The sample of 10 fruit should be taken from a sample block which is representative of the maturity area.

The most efficient method of ensuring the maturity areas are easily recognised by the Authority's maturity auditor is to draw an orchard map, marking in the maturity areas and the sample blocks.

The change from block by block testing to a maturity area testing puts the responsibility on growers to ensure all the fruit picked from each area is of uniform maturity. Stressed vines must be clearly marked and fruit picked from them should not be included in a maturity test sample or packed for export because of ripening problems which could occur later.

pto

page 3

Under the new system linking spray diaries and maturity tests introduced this season, the maturity clearance certificate will not be granted until after the spray diary has been audited by the Authority. All diaries should be sent to the Authority's Tauranga office immediately after the last insecticide spray and once received, the Authority aims to have all diaries checked with 48 hours.

Harvesting may only begin after the maturity clearance has been received and the withholding period for the final insecticide spray and pre-harvest fungicide is over.

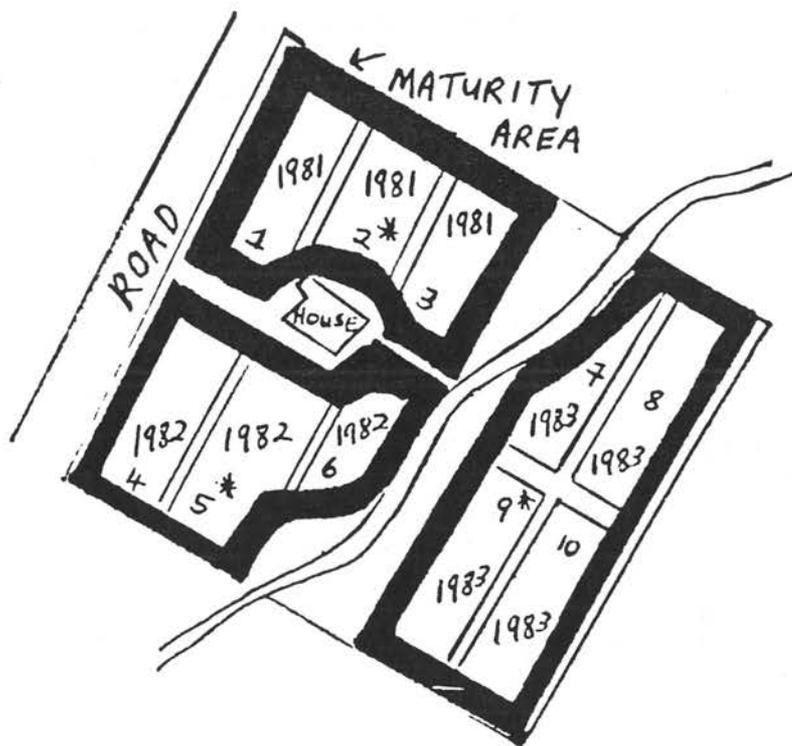
ends

Further information contact:  
Mike Howell  
General Manager Operation  
New Zealand Kiwifruit Authority  
PO Box 1048  
Tauranga  
Telephone (075) 88-143

FEWER FRUIT REQUIRED FOR MATURITY TESTING

By grouping together neighbouring blocks of the same age, similar topography and structure, and which are known from past seasons to mature at the same time, growers are able to define MATURITY AREAS this year. Fruit should be sampled for maturity testing from only one SAMPLE BLOCK in each maturity area:

\* Sample blocks 2, 5, 9



An orchard map like will allow the maturity auditor to understand why the blocks have been grouped together.

NEW SPRAY DIARY/MATURITY TEST PROCEDURES WELL ACCEPTED

The new spray diary/maturity test procedures introduced for the 1988 season have been given the thumbs up. Over 95% of growers who participated in a recent New Zealand Kiwifruit Marketing Board questionnaire say the procedures were practical to implement.

That is the major result of a survey conducted among 191 growers by NZKMB during June and July. It was designed to measure the effectiveness of the new spray diary maturity test procedures and to ensure it is correctly understood and practical.

Of that total, 102 replies were received, with two being invalid. This represents a 53% response rate.

The questionnaire was mailed to growers located throughout all New Zealand's growing areas. The selections were made at random off the NZKMB's orchard list which totals 4852.

Over 54% of growers were aware of the new procedures by the end of February. The changes were first announced in November 1987 with the percentage of growers first learning about the procedures as follows: November 15%, December 16%, January 10%, February 13%. A total of 33% of the replies gave no reply or no specific month.

Details of the procedures presented in New Zealand Kiwifruit and the growers' manual letter were by far the most popular vehicle for conveying the information.

The Journal was the most popular, with 52% of growers learning about the procedure from that source. Of those, 70% believed the Journal "adequately explained" the details.

The growers' manual letter allowed 46% of growers to learn about the procedures, and of those, 89% believed the letter "adequately explained" the details.

The procedures were also successfully conveyed by local newspapers, export representatives, kiwifruit growers' friends, at NZKMB packhouse meetings and from neighbours.

Several growers commented that the local newspapers did not provide sufficient details of the procedures.

Some 72% of replies sent their spray diary into the NZKMB between 11 April and 1 May with the busiest period being the two weeks up until 24 April. A further 16% were not specific about the date of their diary being sent in, or could detail the month only.

83% of the replies detailed the number of days it took to get their spray diary cleared by the NZKMB and the clearance given either by the Marketing Board or their exporter.

Of that 83%, 59% received clearance within seven days, with following results broken down.

							<u>No. of days</u>	
1	2	3	4	5	6	7		
3%	10%	8%	11%	8%	8%	11%		

The NZKMB guaranteed to process spray diaries within 48 hours of receipt, but the questionnaire was unable to assess the time factor involved in mailing.

95% of the replies indicated there was no problem in making contact with the NZKMB to request a maturity clearance. And 90% reported no problems in getting a maturity clearance certificate issued.

In a question asking how the test procedures system could be improved, 55% gave a reply, with 55% of those positive replies indicating there were "no problems" with the procedures.

Of those requesting improvements, several want growers to be given greater responsibility for their own testing, with many suggesting a phone clearance procedure for growers who have proved their honesty and reliability in past seasons.

Other suggestions included the NZKMB only be involved to the extent of undertaking spot checks; a copy of the spray diary clearance be mailed direct to a nominated packhouse; include the date the maturity test is taken; make provision to audit spray diaries locally without posting them to Tauranga, and to have a conditional clearance granted at 6.0° Brix but restricted from picking for another seven days to allow the last fungicide to be applied and allow packhouses to schedule fruit arrivals more accurately.

92% of growers were satisfied that the last procedures were conveyed early enough before the 1988 season.

The final question in the survey asked growers when they filed the new test procedures. The following results in percentages were recorded:

- immediately	11%
- same day	17%
- same week	37%
- same month	11%
- after 1 January 1988	9%
- before your spray diary sent off	5%
- haven't filed it yet	4%
- no reply/not specific	6%

ends



# New Zealand Kiwifruit Marketing Board

## SPRAY DIARY/MATURITY TEST SURVEY QUESTIONNAIRE

Introduction: The purpose of this questionnaire is to measure the effectiveness of the new spray diary/maturity test procedures that were introduced for kiwifruit growers in the 1988 season. To assess that the new system has been understood correctly and is practical, we are asking you to fill in the following questions.

Nearly two hundred growers around the country have been randomly selected for the survey. And although we know it is a very busy time of the year, we ask you to spend 15 minutes answering the following questions. Both you and all New Zealand kiwifruit growers will be assisted by the results.

The information from individual growers will remain confidential.

A summary of the results will be returned to each respondent. And a report will be published in the NZ Kiwifruit Journal as soon as possible.

Many of the questions require a simple yes/no answer and your responses should be circled as shown in this example.

Was your fruit cleared for export to all markets? yes/no

Now please turn over and answer the following questions. Once completed, please post to the NZKA in the self-addressed envelope attached by 30 June 1988.

If you need further information or assistance, please contact:

Nicola Holmes  
Public Relations Officer  
New Zealand Kiwifruit Marketing Board  
PO Box 3742  
Auckland 1  
Telephone (09) 799-913  
Fax (09) 389-476

In November 1987, the NZKA announced the new procedures linking spray diary clearance with maturity testing.

When did you first learn about the new procedures?

In Nov/Dec/Jan/Feb/Mar/or Apr  
(circle one above)

How did you FIRST learn about the new procedures? Underline your answer from the selections in a) to l) below.

AND you may have learnt about the procedures from other sources as well. Circle the appropriate answers - there may be more than one.

- |   |        |
|---|--------|
| a) from your local newspaper                        | yes/no |
| b) from local radio or Rural Report                 | yes/no |
| c) from your growers' manual letter                 | yes/no |
| d) from the NZ Kiwifruit Journal                    | yes/no |
| e) from the annual Kiwifruit Conference in Nov 1987 | yes/no |
| f) from your local Fruitgrowers Federation meeting  | yes/no |
| g) direct from your NZKA field service officer      | yes/no |
| or the new NZKA maturity testing video              | yes/no |
| or at a packhouse meeting                           | yes/no |
| or at an orchard meeting                            | yes/no |
| h) from kiwifruit growing friends                   | yes/no |
| i) from your neighbour                              | yes/no |
| j) from your exporter representative                | yes/no |
| k) from a MAF officer                               | yes/no |
| l) from another source/s - please specify _____     |        |

If you learnt about the procedures from the public media, (ie. not the NZ Kiwifruit Journal) were they adequately explained? yes/no

If no, why were they unclear? \_\_\_\_\_

If you learnt about the procedures from the NZ Kiwifruit Journal, were they adequately explained yes/no

If no, why were they unclear? \_\_\_\_\_

Were the procedures adequately explained in the covering letter sent with the amendments to NZKA growers' manual? yes/no

If no, why were they unclear? \_\_\_\_\_

What date did you send in your spray diary for clearance to NZKA's Tauranga office? \_\_\_\_\_

What date did you receive your spray diary clearance or notification from your exporter/NZKA? \_\_\_\_\_

Did you have any problems making contact with the NZKA to request your maturity clearance? yes/no

If yes, was action taken by the NZKA in reasonable time? yes/no

If no, what was the problem? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Did you have any problems getting your maturity clearance certificate issued? yes/no

If yes, what was the problem? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was your fruit cleared for export to all markets? yes/no

If no, was it subsequently cleared by NZKA or residue testing? yes/no

If no, what was the cause? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was your fruit delayed from harvest because of deviations found during the spray diary audit? yes/no

If yes, was permission later given to export? yes/no

If permission was not granted, why not? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Do you think the 1988 spray diary clearance/maturity test procedures were practical to implement? yes/no

If no, why not? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

How do you think the test procedres system could be improved?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Do you think the new procedures were conveyed to growers early enough  
before the 1988 season? yes/no  
If no, how much earlier should they be made available? \_\_\_\_\_

---

---

When you received your growers' manual update letter outlining the new  
procedures, did you read & file it -

- |   |        |
|---|--------|
| a) immediately                              | yes/no |
| b) the same day                             | yes/no |
| c) the same week                            | yes/no |
| d) the same month                           | yes/no |
| e) after 1 Jan 1988                         | yes/no |
| f) before you sent off your<br>spray diary? | yes/no |
| g) haven't filed it yet                     | yes/no |

ends

Thank you for taking time to contribute to the questionnaire.