

Pacific Seeds

Briefing on Gisborne / Pukekohe
Maize Crops

28 August 2002

Timeline to today

- 2001 : Parent seed imported
: PCR test - no GM found
- 2002 : Hybrid seed produced
: in Gisborne and Pukekohe
- 25 Jul : PCR test on hybrid seed
- 6 Aug : PCR results: +ve 35S / -ve nos3
- 7 Aug : Pacific Seeds notified MAF
- 8 Aug : Meeting to agree actions

Today's meeting

- Requested information for each location - Gisborne then Pukekohe - including:
 - Sampling and testing techniques
 - Test results
 - Farm locations
 - Separation mechanisms
 - Status of waste
 - Chronology of events

Today's meeting

- Post control procedures
- Quality Assurance Review
- First - introduction to Pacific Seeds

Pacific Seeds

- Australia / New Zealand - marketing maize, forage sorghum and forage brassica seeds
- Committed to marketing seed in NZ - therefore need confidence we have no GM
- All Pacific Seeds procedures exceeded legislative requirements
- Working with MAF / ERMA to understand source of GM

Pacific Seeds

- Confidentiality
 - commercially sensitive information
 - not relevant to process
- Consultation
 - process from today
 - further briefing once results come through

Summary points

- Gisborne seed
 - Corson Grain
 - M500
 - +ve for Bt176
 - <0.05%
- Pukekohe seed
 - Seed Solutions
 - AE36
 - +ve for YieldGard
 - <0.05%

•Isolation

- contracts specified OECD isolation
- >200m and/or temporal and/or physical barrier

Gisborne crop

- Hybrid M500
- Sourced from Garst Seed Company
- Three sites: one for hybrid, one for female parent, one for male parent
- Chronology of parent and hybrid seed movement in document (page 20). All seeds accounted for.

Gisborne crop: testing

- Hybrid parent seed tested by GeneScan prior to planting: found to be clear
- Representative samples drawn on hybrid
- 1400 seed sample submitted to GeneScan
- +ve for 35s / -ve for nos
- Quantified as Bt176 at $<0.05\%$
- Subsequent samples submitted by MAF of hybrid, male parent, female parent

Gisborne crop: location and separation

- Ormond Valley: hybrid site
 - 20m to sweetcorn (Annexure B)
 - temporal isolation - 3 days (Annexure C)
 - male / female GM presence not confirmed
 - female detassled
 - male <25% of seed crop
 - detected presence <0.05%

Gisborne crop: location and separation

- Tangihanga: female parent seed site
 - Separated by distance (>200m)
- Harrington Road: male parent seed site
 - 75-100m to sweetcorn (Annexure B)
 - Temporal isolation - 12 days (Annexure C)

Gisborne crop: status of waste

- Farm sites
 - All sites ploughed / stubble incorporated in Autumn
 - Minimal evidence of viable maize kernels
- Processing locations
 - Corson grain location clean
 - Waste disposed of and destroyed in landfill
 - Screenings destined for animal feed intercepted and destroyed

Pukekohe crop

- Hybrid AE36
- Sourced from Monsanto (Dekalb)
- Thirteen sites: eleven for hybrid, one for female parent, one for male parent
- Chronology of parent and hybrid seed movement in document (page 22). All seeds accounted for.

Pukekohe crop: testing

- Hybrid parent seed tested by Monsanto prior to shipment: found to be clear
- Samples drawn from biggest area of hybrid
- 1400 seed sample submitted to GeneScan
- +ve for 35s / -ve for nos
- Quantified as YieldGard at $<0.05\%$
- Subsequent samples submitted by MAF of hybrid, male parent, female parent

Pukekohe crop: location and separation

- Crop & Food Research Station: hybrid sites
 - >110m to maize trials (Annexure B)
 - Guard rows on maize trials of >4 rows
 - Male / female GM presence not confirmed
 - female detassled
 - male <25% of seed crop
 - Detected presence <0.05%

Pukekohe crop: location and separation

- Puni: hybrid site
 - No other maize or sweetcorn in the vicinity (Annexure B)
- Waiuku: female parent seed site
 - No other maize or sweetcorn in the vicinity
 - (Annexure B)
- Logan Road: male parent seed site
 - Closest maize 350m

Pukekohe crop: status of waste

- Farm sites: Crop & Food
 - Standing stubble
 - Evidence of viable seed on cobs
- Farm site: Puni
 - Standing stubble
 - Little evidence of viable seed
- Farm site: Waiuku
 - Ploughed in Autumn and planted in grass
 - No evidence of viable seed

Pukekohe crop: status of waste

- Farm site: Logan Road
 - Ploughed in Autumn and planted in grass
 - Little evidence of viable seed
- Processing location: Dazeley Road
 - Seed evident on inspection
 - Cleaned 27 August
 - Seed transported to Auckland Airport for destruction

Post control procedures

- *Zea mays* germinates readily at >15C
- Dormant and hard seed extremely rare
- Seed germinates or rots as soon as optimum temperature is reached

Post control procedures

- Fallow fields where stubble is intact:
 - stubble mulch asap
 - plough to incorporate stubble
 - wet weather: substitute ploughing with knockdown herbicide
- Fallow fields with maize stubble incorporated:
 - cultivate at least 3 times in Sept / Oct
 - 10 days between cultivations

Post Control Procedures: options for recropping

- Pukekohe
 - Pasture grass
 - Peas
 - Potatoes
 - Seed maize
 - Gisborne
 - Pasture grass
 - Squash
 - Seed maize
-
- Seed maize option is sound
 - Not commercial maize or sweetcorn

Post Control Procedures: options for recropping

- Process:
 - Limit to single cross types: any volunteers will be hybrids
 - Seed maize is grown on 75cm rows and is inter-row cultivated
 - Rogueing for removal of hybrid plants is normal procedure
 - Rogueing occurs prior to flowering
 - Female (75%) is detassled

Post Control Procedures:

Inspections

- Inspections by Pacific Seeds:
 - Two week cycle Sept 1 - Oct 31
 - Monthly cycle Nov 1 - March 31
- MAF to provide auditing procedure
- If seed corn is to be grown, MAF to sign off prior to planting
- Subject to no volunteers, control procedures cease on March 31

Quality Assurance Review

- Pacific Seeds intends to review internal processes
- Planned for December 31 completion

Conclusion

- Need for continued regular open dialogue
 - further meeting once test results available
 - consultation prior to information release
- Seeking earliest possible decisions on post control procedures:
 - grazing
 - replant options

PACIFIC SEEDS

GISBORNE / PUKEKOHE MAIZE CROP

**BRIEFING PAPER FOR MINISTRY OF
AGRICULTURE AND FORESTRY**

AUGUST 2002

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INTRODUCTION

1. Pacific Seeds imported four parent lines (two pairs) of maize seeds from the United States in 2001 in order to produce hybrid seeds in New Zealand. The hybrid seed is now the subject of this inquiry. One pair of parent lines was sourced from the Garst Company (a related company to Pacific Seeds), was grown in Gisborne. Another pair, sourced from Monsanto, was grown in Pukekohe. All parent lines were tested prior to planting and no GM material was detected. The parents of the seed planted in Gisborne were tested by GeneScan in Melbourne, one of the laboratories accredited by MAF for seed testing. Similarly, the parent seed planted in Pukekohe was tested by Monsanto prior to shipment.
2. The Gisborne crop (hybrid M500) was grown under contract by Corson Grain, and produced 8.585 MT (bulk) seed. The Pukekohe crop (hybrid AE36) was grown under contract by Seed Solutions in 11 plots. Ten of these were grown on a Crop & Food Research station. A total of 21.058 MT of seed was produced in Pukekohe (gross weight including packaging was 21.738 MT).
3. Samples were taken from the hybrid production crops and on 25 July 2002 sent to GeneScan Melbourne for testing as part of Pacific Seeds' normal quality assurance practice. The tests were conducted on samples of 1400 seeds. The test results were reported to Pacific Seeds on 6 August 2002. Two samples were positive for the 35S sequence and negative for the nos3' sequence.
4. Pacific Seeds informed the Ministry of Agriculture and Forestry (MAF) of the test results on 7 August 2002. MAF biosecurity officers then took control of the seeds in three locations and drew samples for further testing. Pacific Seeds elected to destroy the seeds, which were placed under MAF control.
5. Pacific Seeds also ordered further testing for specific GM maize sequences and verbally reported the results to MAF on 9 August. The results indicated that the Gisborne crop contained DNA sequences characteristic for the GM maize Bt176 (produced by Syngenta/Novartis). The Pukekohe crop contained DNA sequences characteristic for the GM maize Yieldgard (such as Mon802, Mon809 and Mon810 produced by Monsanto). A full set of results, including quantitative analysis, was forwarded to MAF on 16 August 2002. In the case of both hybrids, the level of the 35S promoter detected was "less than 0.05%".
6. Representatives of Pacific Seeds and Corson Grain met with MAF, Ministry for the Environment and ERMA officials on the morning of 8 August 2002 to inform them of the initial test results, and to ensure Pacific Seeds was able to respond appropriately. MAF asked that the following information be provided:
 - copies of all the test results for both the parent lines and the hybrid seeds, as well as confirmation of the sampling and testing techniques used;
 - locations of all the farms where the parent lines were grown in New Zealand;
 - the specifications for separation mechanisms (isolation distances, timing) set out by Pacific Seeds and also the actual measures that took place;
 - the status of waste plant and vegetable material remaining at the farms where the parent lines were grown;

- a brief chronology of the handling and movements of the parent lines and the hybrid crop; and
- where all the parent and hybrid seeds are (need to account for all seeds).

7. This document responds to MAF's information request, and addresses the relevant matters in the following sequence:

- (a) Background to:
 - Pacific Seeds; and
 - the 8 August 2002 meeting;
- (b) PCR testing:
 - the first and subsequent testing.
 - sampling and testing techniques used.
- (c) Locations of all the farms where the parent lines were grown in New Zealand are attached as Annexure B.
- (d) Crop Management Information – including separation mechanisms, current field conditions, accounting for seed, and status of waste.
- (e) Brief chronology of handling and movements of parent and hybrid seed.
- (f) Proposed post control procedures.
- (g) Quality assurance revisions proposed by Pacific Seeds.

Background

The Company

8. Pacific Seeds Pty Ltd. is an Australian company owned by Advanta B.V. a joint venture company between Cosun, a Dutch sugar cooperative, and Astra Zeneca, a Swiss/British pharmaceutical company. Advanta B.V. is a major international seed company with business units in 26 countries. Pacific Seeds does not sell any GM products in New Zealand, but related companies in North America do sell GM maize and canola in their domestic markets.
9. While it has a small presence in New Zealand - marketing maize, forage sorghum, and forage brassica seeds - Pacific Seeds is Australia's largest seed company. It employs four staff in New Zealand and 125 in Australia.
10. Pacific Seeds has been active in the maize seed market in New Zealand for a number of years. In order to avoid the potential for low level GM presence in the non-GM maize seed products imported to New Zealand from the United States and Chile, the company decided to move towards sourcing all of its New Zealand maize seed requirements from either Australian or New Zealand based seed production. It recognised that achieving this aim might take several years. Accordingly, in 2001 it imported some parent seed into New Zealand from the US, to allow for local production of hybrid seed. The seeds were tested prior to planting to ensure freedom from GM.
11. The company has a strong commitment to developing and conducting its business in accordance with a rigorous Quality Assurance Programme. In 2001 as part of its Quality Assurance Programme it instigated a system of PCR testing of imported parent seed and the resultant hybrid seed. These test procedures exceeded the New Zealand legislative requirements in place at that time.

Meeting 8 August – Possible Presence of GM Maize Seeds in New Zealand

12. Given its desire to comply fully with both the Biosecurity Act 1993 and the Hazardous Substances and New Organisms Act 1996, Pacific Seeds notified MAF on 7 August 2002 of the test results which were subsequently discussed at the 8 August meeting in Wellington.
13. While Pacific Seeds agrees that the Minutes of that meeting reflect the open and frank discussion, there are some points which the company wishes to clarify or correct:
 - (a) In the second paragraph under the heading "Gisborne Crop" on page 1 the Minutes state that "volunteer plants are very rare in maize". This is not strictly true. Volunteer plants can be quite prolific, although they are very easily controlled by cultivation and herbicide application. Additionally, maize has no hard seed carry-over from one year to another.
 - (b) The Minutes state in paragraph 1 under the heading "Gisborne Crop" that "Two parent lines were imported from the US [and] tested by GeneScan using the sweetcorn protocol even though it didn't apply to maize at the time". This is correct. The Minutes also state that "Two parent lines (different from the Gisborne crop) were imported from the US (Monsanto). The seeds were tested by Monsanto in St Louis before export (according to the sweet corn

protocol)". It should be noted that the testing was not to the sweetcorn protocol but to Monsanto's own protocol for testing maize.

- (c) The Minutes recorded the meeting well. However, at a subsequent discussion on the same afternoon Pacific Seeds clarified the areas of parent seed production rather than just the hybrid production to which the Minutes refer. The Minutes did not note this subsequent clarification. The actual numbers of plots/fields are 13 in the Pukekohe area (10 at the Crop & Food facility, 3 in the surrounding area) and 3 in Gisborne.

- 14. These three issues were communicated by the company to Mr Nendick by email on Friday 16 August 2002.

PCR Testing

Testing of Parent Lines

15. Both parent lines were tested prior to being planted in New Zealand and both were negative for GM. The AE36 parents were tested by Monsanto at its facility in the US and the testing methodology is provided in Annexure A. The M500 parents were tested by GeneScan at its Melbourne laboratory and the testing methodology is also provided in Annexure A.

Testing of Hybrid Crop

16. Hybrid M500 (the Gisborne crop) was allocated Sample No. GSA02-537; and hybrid AE36 (the Pukekohe crop) was allocated Sample No. GSA02-536 for the purpose of PCR testing. Both hybrids were tested by GeneScan and the results are included in Annexure A.
17. GeneScan has supplied quantitative result data, which Pacific Seeds forwarded to MAF on 16 August 2002. Sample No. GSA02-536 data indicates the presence of the 35S promoter DNA, but that its quantity in relation to total DNA present is less than 0.05%. GeneScan reports that this sample contains DNA sequences which are characteristic of the Yieldgard modification in genetically modified maize carrying genes referred to as MON802, MON809, or MON810.
18. Sample No. GSA02-537 indicates that the presence of the 35S promoter DNA in relation to total DNA present is less than 0.05%. GeneScan reports that this sample contains DNA sequences which are characteristic of the modification in genetically modified maize carrying the gene referred to as Bt176.

Sampling Techniques

19. Representative samples of each batch were requested by Pacific Seeds to be drawn by the producers for germination testing, PCR testing, and as a reference sample.

Further Testing

20. Although Pacific Seeds plans no further tests, it is awaiting the results of the samples submitted by MAF to GeneScan and the US laboratory. While the results will not impact on the company's decision not to market maize in New Zealand this year, the results may help clarify why or how these circumstances have arisen. It will also assist in the development of new quality assurance (QA) procedures.

Locations of all Farms where Parent Seed Grown

21. The locations of these farms are noted on the documents attached as Annexure B.

Crop Management Information

Isolation Required

22. In its production contracts with both growers, the company required isolation to be to OECD standards in terms of distance and time. Copies of the relevant parts of those contracts are included in Annexure C.
23. OECD certification is not required for the commercial sale of seed in New Zealand or any of the overseas markets this seed could have been destined for. However, as a company Pacific Seeds recognises the value of physical barriers which effectively inhibit and restrict pollen flow. Copies of the relevant excerpts from the OECD guidelines and MAF's Seed Certification 2001-2002 Standards are included in Annexure C.

Separation Achieved

24. The isolations achieved for each of the hybrids in question are detailed in the attached maps and where applicable, timelines for temporal isolation are presented in Annexures B and C.
25. From a seed company perspective, Pacific Seeds believes isolation was adequate on each of the fields. This was achieved through separation in distance, time of flowering and reinforced with physical barriers.
26. In terms of the risk of outcrossing of a low level of GM plants potentially present in our seed fields, into other fields, Pacific Seeds also believes the isolation was sufficient. This can be summarised by reviewing each of the nearby maize or sweetcorn crops.
27. At Gisborne, sweetcorn was grown in fields adjacent to the Pacific Seeds seed maize. Pacific Seeds does not consider that this presents a problem because:
- there was an isolation of 20 m, that included a large shelter belt over an estimated 66% of the junction between the fields;
 - the sweetcorn had completed flowering no less than 3 days prior to the seed maize pollen becoming available;
 - Pacific Seeds is unaware at this time if the GM presence was in the male parent or the female parent (or in fact, for certain, whether it was in either);
 - all female plants were detassled to remove any potential for pollen production, as part of normal seed production practice. This means that the plants cannot produce any pollen, so if the GM presence was in the female parent, there is no risk of outcrossing; and
 - if it was present in the male parent, the male parent represents only 25% of the plants in the seed crop. As the male parent is inbred, its overall robustness is low when compared to hybrid sweetcorn and maize normally grown in New Zealand. This lack of robustness means there is generally a lower level of pollen production compared to the hybrids, thereby further reducing the risk of outcrossing.
28. This, combined with the separation factors and the fact that the detected GM presence is at a level of less than 0.05% means that the potential for outcrossing into the sweetcorn is extremely low.
29. At Pukekohe, maize nurseries and trials were grown to within 110 m of the AE36 seed maize.

30. The isolation distance of 110 m was greatly enhanced by the following factors:

- no fewer than four guard rows around the maize trial were mulched post flowering. Under MAF seed certification guidelines, the practice of row removal is equal to an additional 10m of isolation for each row removed. An additional isolation distance of 40 m was achieved in this instance;
- there were two very large and well established shelter belts between the two plots (approximately 8 m high) inhibiting pollen transfer;
- there was a period of only three days when pollen was being produced on the male plants at the time the other maize plots were flowering;
- Pacific Seeds is unaware at this time if the GM presence was in the male parent or the female parent (or in fact, for certain, whether it was in either);
- all female plants were detassled to remove any potential for pollen production, as part of normal seed production practice. This means that the plants cannot produce any pollen, so if the GM presence was in the female parent, there is no risk of outcrossing; and
- if GM was present in the male parent, the male parent represents only 25% of the plants in the seed crop. As the male is inbred, its overall robustness is low when compared to hybrid maize normally grown in New Zealand. This lack of robustness means there is generally a lower level of pollen production compared with hybrid maize, thereby further reducing the risk of outcrossing.

31. This, combined with the separation factors and the fact that the detected GM presence is at a level of less than 0.05% means that the potential for outcrossing into the other maize is extremely low.

Maize produced at Gisborne

32. This section covers the seed produced in the Gisborne area. There was 1 field of hybrid production M500, 1 plot of male seed production 821082 and 1 plot of female seed production 821093x821094.

Area Planted to Produce M500 Hybrid Maize 2001/2002

Block No. 10276 – Area 11.82 Ha

Planting date 20/11/01 (male) and 28/11/01 (second male and female)

Flowering date – first silk on the female and first pollen from the male - 4/2/02, 50% silk on 7 February 2002 and 50% pollen on 8 February 2002

33. There was one block located on the Ormond Valley Road of approximately 11.82 hectares planted. Isolation of this seed production block from other maize/sweetcorn grown in the immediate area was achieved by a 20 metre physical separation and by temporal isolation. There was an area of sweetcorn to the north and to the south of this production block. The paddocks on the west and eastern boundaries of the block were planted in pasture. Full details of temporal isolation are provided in the table included in Annexure C and photographs of this area are included in Annexure E.

34. The current state of the block is that after harvest the land was stubble mulched and cultivated. There is very little exposed stubble, and no seed or cobs are visible by inspection.

35. Corson Grain has been notified of concerns about the crop grown on this block and was advised not to undertake any further activity until advised by MAF/Pacific Seeds. Corson Grain confirms that the landowner has been notified of this situation. A strategy for controlling volunteers and land use for the following year is discussed later in the document.

Area Planted to Produce Male Parent 821082, 2001/2002

Block No. 102BA – Area 0.2 Ha

Planting date 16/11/01

Flowering date – reached 50% pollen and silk on 2/2/02 with first silk and pollen recorded 29/01/02

36. There was one block located at Harrington Road of approximately 0.2 hectares planted. Isolation of this seed production block from other maize/sweetcorn grown in the immediate area was achieved by distance and temporal isolation. There was an area of sweetcorn to the northeast approximately 75 to 100 metres away. Full details of temporal isolation are provided in the table included in Annexure C. The rest of the surrounding crops were forestry, pasture grass and melons.

37. The current state of the block is that after harvest the land was stubble mulched and cultivated. There is very little exposed stubble and straw and no seed or cobs are visible by inspection.

38. Corson Grain has been notified of concerns about the crop grown on this block and was advised not to undertake any further activity until advised by MAF/Pacific Seeds. Corson Grain confirms that the landowner has also been notified of this situation. A strategy for controlling volunteers and land use for the following year is discussed later in the document.

Area Planted to Produce Female Parent 821093x821094, 2001/2002

Block No. 102T2 – Area 0.33 Ha

Planting date 16/11/01 and 27/11/01

Flowering date - reached 50% pollen on 30/1/02 and 50% silk on 7/2/02 with first silk on 5/2/02 and first pollen on 28/1/02

39. There was one block located at Tangihanga Station Road of approximately 0.33 hectares planted. Isolation of this seed production block from other maize/sweetcorn grown in the immediate area was achieved by distance. There was an area of maize planted more than 300 metres away in a northwesterly direction. The surrounding crops were pasture grass.

40. The current state of the block is that after harvest the land was stubble mulched and cultivated. There is very little exposed trash and no seed or cobs are visible by inspection.

41. Corson Grain has been notified of concerns about the crop grown on this block and was advised not to undertake any further activity until advised by MAF/Pacific Seeds. Corson Grain has confirmed that the landowner has also been notified of this situation. A strategy for controlling volunteers and land use for the following year is discussed later in this document.

Details of Gisborne Overall Production 2001/2002

M500 Hybrid from the Gisborne Block No. 10276 a total of 8,585 kgs was produced.

821082 Male parent Block No. 102BA a total of 920 kgs was produced.

821093x821094 Female parent Block No. 102T2 a total of 373 kgs was produced.

42. All hybrid production was harvested by a four row cob harvester and trucked to Corson Grain's processing and drying facility at Gisborne. All parent production was harvested and taken to the Corson research farm for drying in small bins. All cobs were bagged throughout this process. Then the bins were transported to the Corson Grain's processing facility for the next stages of processing.

43. On arrival, the hybrid cobs passed over a husking bed where husks and some loose grain were removed. They then passed over a grading table where poor quality cobs were removed. Wet cobs then went into drying bins and were dried onsite. Dried cobs were then shelled and the seed was bagged into bulk bags. At this stage a representative sample was taken and provided to Pacific Seeds for PCR testing. The seed was stored in these bulk bags until an opportunity for seed processing occurred. The seed then went into the seed dressing system, was sized, graded and gravity separated in one operation. The seed was treated with a fungicide and then packed into bulk bags provided by Pacific Seeds. Samples were taken from each of the processed lines and sent to the seed technology centre at Massey for purity and germination testing.

44. Husks and loose grain removed at the husking bed, poor quality cobs and the core of the cobs were disposed to landfill. There would be no opportunity for volunteer plants to emerge at the landfill for the following reasons:

- (a) landfill chemistry means that plant waste is quickly denatured through the natural high temperature decomposition. Landfill leachate is a byproduct of this chemical reaction.
- (b) the landfill operator has to work in small areas called cells to bury the waste within hours of it arriving. This is necessary to avoid vermin and objectionable odour being created and has the effect that any waste seed would be deeply buried and unable to germinate.

45. Screenings, small grain and broken grain from the seed processing plant were captured in a one-tonne bag to be incorporated in animal feed. These screenings were intercepted before use and were destroyed pursuant to a MAF compliance order.

Sampling

46. Representative samples of all processed seed of the M500 hybrid seed were sent to the seed testing laboratory at Massey University for germination testing and a representative sample from the sheller was sent to Pacific Seeds' store in Hamilton for preparation for PCR testing at GeneScan Australia.

ACCOUNTING FOR THE GISBORNE SEED

47. All seed that was imported by or locally produced for Pacific Seeds in Gisborne has been accounted for.

Accounting for Seed Produced

48. A compliance order issued under the Hazardous Substances and New Organisms Act 1996 identified the following seed at Gisborne:

- 821093x821094 – 7 kgs of remnant female planting seed;
- 821082 – 920 kgs of male produced planting seed;
- 821093x821094 – 373 kgs of female produced planting seed;
- M500 – 8585 kgs of hybrid produced seed.

49. In addition, 3DHA9 by 3IIH6 (AE36) 21,738kgs (gross including bags and pallets) was identified at Gisborne having come from Pukekohe.

50. Seed samples sent to the seed testing laboratory in Palmerston North for germination testing and to Pacific Seeds' store in Hamilton for preparation for PCR testing at GeneScan Australia were recovered and destroyed by MAF Palmerston North and MAF Auckland respectively.

Accounting for Seed Imported

51. In April 2001 Pacific Seeds initially imported one bag of the female parent (Code UX26/UX77 Lot No. Q51C1A-7078) and one bag of the male parent (Code IK88 Lot S35C1T-93767). In September 2001 the company imported a further seven bags of the female parent (UX26/UX77 Lot No. Q51C1A-7078) and three bags of the male parent (IK88 Lot S35C1T-93767). Therefore a total of eight bags of the female parent (approximately 180 kgs) and four bags of the male parent (approximately 90 kgs) were imported.

52. Of this, all but 7 kgs of female seed were used in the production process. That remaining seed was also recovered and destroyed by MAF.

Maize Produced at Pukekohe

53. This section covers the seed produced in the Pukekohe area. There were 11 individual plots of hybrid production AE36, 1 plot of female seed production 3DH89 and 1 plot of male seed production 3IH6.

Pukekohe Research Farm – Production for Areas of AE36 Hybrid Maize 2001/2002

54. There were 10 plots at this location, totalling approximately 10.503 hectares. Isolation of the seed production plots from other maize grown in the location was by a combination of three factors: distance; temporal isolation; and physical barriers. (These factors are described further below.) Full details of temporal isolation are provided in the table included in Annexure C.
55. Outside the boundaries of the research farm, there were various horticultural crops including onions, potatoes, green vegetables, and some areas of rye grass. There was no evidence of any maize or sweetcorn crops in the area surrounding the farm.
56. The current state of the plots is stubble with considerable straw, little free grain on the surface, but a number of unthreshed cobs are present on each plot. Each plot was either sprayed prior to harvest with Preglone or post-harvest with Roundup to control weeds during the autumn-winter fallow period. The benefit of this control is now coming to an end because moist, warmer spring weather will occur soon.
57. Evidence of burnt grains, husks and cores is present adjacent to Plots No. 1 and No. 9.
58. Seed Solutions was notified of concerns about the crop grown on these plots, and was directed not to undertake any further activity until advised by MAF/Pacific Seeds. A strategy for controlling volunteer plants and land use for the following year is discussed later in this document.
59. Details of the individual plots are as follows:
- (a) Plot No. 1 – Area 1.0 Ha
Planting date 20/11/01
Flowering date 3/2/02
 - (b) Plot No. 4 – Area 0.8Ha
Planting date 6/11/01
Flowering date 16/1/02
 - (c) Plot No. 6 – Area 1.438 Ha
Planting date 20/11/01
Flowering date 1/2/02
 - (d) Plot No. 10 – Area 0.585 Ha
Planting date 6/11/01
Flowering date 16/1/02
 - (e) Plot No. 12 – Area 0.714 Ha

- Planting date 9/11/01
Flowering date 17/1/02
- (f) Plot No. 13 – Area 1.470 Ha
Planting date 10/11/01
Flowering date 18/1/02
- (g) Plot No. 15 – Area 1.323 Ha
Planting date 22/11/01
Flowering date 3/2/02
- (h) Plot No. 16 – Area 1.397 Ha
Planting date 20/11/01
Flowering date 3/2/02
- (i) Plot No. 18 – Area 0.350 Ha
Planting date 21/11/01
Flowering date 1/2/02
- (j) Plot No. 19 – Area 1.426 Ha
Planting date 21/11/01
Flowering date 1/2/02

60. Plots on the farm that were used to grow maize other than the AE36 maize during the 2001/2002 season were Plots numbered 22, 24, 25, 29, 30, 31 and 32. (See map included in Annexure B.)

61. Plots 24, 25, 29, 30, 31 were all used for nursery work. That is where the emerging silk is covered by a bag to prevent the introduction of outside pollen. The resulting cobs were later harvested, and the remaining plants were mowed and ploughed back into the ground. Subsequently those plots have been ploughed and there is now little evidence of any maize crops other than a few stalks in the ground.

62. Plot 32 contained a maize yield trial, and is situated 125 metres from Plot 10. The first eight rows of the trial in Plot 32 were mowed and ploughed into the ground. The purpose of this is to provide a further pollen barrier with an equivalent distance effect of 80 metres (per MAF guidelines: Seed Certification 2001/2002 Field and Laboratory Standards). Further separation is provided by a physical barrier of two large pine hedges and a period of 16 days between the start of flowering of Plot 10 and the start of flowering in Plot 32. Subsequently the area has been ploughed, and there is now little evidence of a maize crop other than a few stalks in the ground.

63. Plot 22 contained a maize yield trial and is situated 110 metres from Plot 13. The first four rows of the trial in Plot 22 were mowed and ploughed into the ground giving an equivalent distance effect of 40 metres (per MAF guidelines). The physical barrier of two large pine hedges and a period of 7 days between the start of flowering of Plot 13 and the start of flowering of Plot 22 provide further separation. Subsequently the area has been ploughed and there is now little evidence of a maize crop other than a few stalks in the ground.

Commercial Farm Site 1 - Areas Planted to Production of AE36 Hybrid Maize 2001/2002

Farm Site No. 1 – Area 2.0 Ha
Location - Puni

Planting date 21/11/01
Flowering date 1/2/02

64. This is an area surrounded by large pine trees and located in a region of grass production with few crops. There are no other maize or sweetcorn crops in the vicinity. Since harvest, the field has been fallow but grazed by cattle and little grain or cobs are currently evident. The grower was notified by Seed Solutions of concerns about the crop grown in this area, and was advised not to graze or cultivate until visited by MAF/Pacific Seeds to clarify the situation.

Commercial Farm Site 2 - Area Planted to Produce 3DHA9 Female Parent Seed 2001/2002

Farm Site No. 2 – Area 0.4 Ha
Location - Waiuku
Planting date 17/11/01
Flowering date 31/1/02

65. This site is located on a dairy farm, either surrounded by pastures or crops of peas/oats. The closest maize crop was sited more than 400 metres away. Since harvest, this area has been cultivated and replanted with grass in the Autumn. Just after planting with grass, there was a flush of grass growth and volunteer maize plants. However, the volunteer maize plants were killed by heavy frost and grazing. The area has also been grazed several times since the planting of grass.

66. The grower has been notified of concerns about the crop grown in this area and advised not to graze until visited by MAF/Pacific Seeds to clarify the situation.

Commercial Farm Site 3 - Area Planted to Produce 3IHH6 Male Parent Seed 2001/2002

Farm Site No. 3 – Area 0.3 Ha
Location – Logan Road, Pukekohe
Planting date 19/11/01
Flowering date 29/1/02

67. This area is surrounded by grass on three sides, and a farmyard with sheds on the fourth side. The closest maize crop was approximately 350 metres away. Since harvest of the male parent, this area has been cultivated and replanted with grass in the Autumn. Just after planting with grass, there was a flush of grass growth and volunteer maize plants. However, the volunteer maize plants were killed by heavy frost and grazing. It has been grazed several times since the planting of grass.

68. The grower has been notified of concerns about the crop grown in this area and advised not to graze until visited by MAF/Pacific Seeds to clarify the situation.

Details of Pukekohe Overall Production 2001/2002

AE36 Hybrid from the various plots at Pukekohe Research Farm and Farm Site 1 produced a total of 21,058 kgs.

3DHA9 Female Parent, Farm Site 2 produced 648 kgs.

3IHH6 Male Parent, Farm Site 3 produced 1,240 kgs.

69. All production was harvested by a single row harvester, and trucked to Seed Solutions' processing and drying facility at Puni. The location of this facility is also included on maps included in Annexure B.

70. On arrival, cobs passed over a husking bed where husks and some loose grain were removed. They then passed over a grading table where poor quality cobs were removed. Wet cobs then went into drying boxes and were dried onsite. Dried cobs were then shelled and the grain (raw seed) was bagged into bulk bags provided by Pacific Seeds to allow seed to be trucked to Gisborne for seed processing.

71. As a result of inspection on 22 August 2002, Pacific Seeds cleaned the seed drying and shelling facility on 27 August 2002. This cleaning was agreed with MAF on 26 August 2002 and it is anticipated that all material will be incinerated at Auckland airport under MAF supervision.

72. Husks and loose grain removed at the husking bed, poor quality cobs and the core of the cobs were burnt. Initially this occurred onsite at the processing shed. As a result of a complaint relating to the smoke, the remaining material was transported back to the Pukekohe Research Farm Site where it was burnt in two locations on the farm which are noted on the map for the Food & Crop facility included in Annexure B.

Sampling

73. At the request of Pacific Seeds, representative samples of AE36 were sent to New Zealand Seed Lab in Christchurch for germination testing and to Pacific Seeds' store in Hamilton for preparation for PCR testing at GeneScan Australia.

ACCOUNTING FOR THE PUKEKOHE SEED

74. All seed that was imported by or locally produced for Pacific Seeds in Pukekohe has been accounted for.

Accounting for Seed Produced

75. A compliance order issued under the Hazardous Substances and New Organisms Act 1996 identified the following seed at Pukekohe, in accordance with the information supplied to MAF by Pacific Seeds:

- 3IIH6 – 4 kgs of remnant male planting seed;
- 3DHA9 – 136 kgs of remnant female planting seed;
- 3IIH6 – 1,240 kgs of male produced seed;
- 3DHA9 – 648 kgs of female produced seed.

76. In addition, 3DHA9 by 3IIH6 (AE36) 21,738 kgs (gross including bags and pallets) was placed under the control of MAF for destruction. It had been transported to Gisborne in late July 2002 and the freight invoice confirming this is included in Annexure D.

77. The remnants of the seed samples sent to New Zealand Seed Lab in Christchurch for germination testing and to Pacific Seeds' store in Hamilton for preparation for PCR testing at GeneScan Australia were recovered and destroyed by MAF Christchurch and MAF Auckland respectively.

Accounting for Seed Imported

78. In September 2001, Pacific Seeds imported 16 bags, (80,000 kernels) of 3DHA9 female parent seed weighing approximately 356 kgs and four bags (80,000 kernels) of 3I1H6 male parent seed weighing approximately 102 kgs. All of this seed was supplied to Seed Solutions under a production contract. In the production process Seed Solutions used 220 kgs of 3DHA9 and 98 kgs of 3I1H6. The remnants of this planting seed have been recovered by MAF for destruction.
79. Documents verifying the amount imported are included as Annexure D.

Brief Chronology of Parent and Hybrid Seed Movement

M500 (Grown at Gisborne)

80. In April 2001 Pacific Seeds imported small quantities of male and female parent seed to allow the trial production of hybrid M500 in New Zealand.
81. This seed was:
- 1 unit of UX26/UX77 Q51C1A-7078
 - 1 unit of IK88 S35C1T-9367
82. Attached as part of Annexure D is the packing invoice (No. 031601A) from the Garst Seed Co. when it despatched the seed. Please note the date is in error and should read March 16, 2001. Commercially sensitive information, irrelevant to this process, has been deleted from this document.
83. Also attached is the Phytosanitary Certificate No. 4269763. The weight shown on the phytosanitary certificate of 33,953.32kg corn seed is correct. The stated number of units of maize is 1650. However, this is a clerical error that occurred in the US when the shipping company prepared the document. This error was only discovered in the course of compiling this information for MAF. Pacific Seeds has spoken with the US import/export manager responsible who has confirmed that the actual amount shipped was as per the packing invoice, 1659 units, and all units were inspected for the purposes of the phytosanitary certificate.
84. A MAF Biosecurity Clearance Certificate B2001/21730 was issued on 20 April 2001.
85. A sample of the male and female parent lines was combined and submitted to GeneScan as NZD. GeneScan gave the sample the designation GSA01-236. The result of this test by GeneScan was negative and is attached as part of Annexure D.
86. In August 2001, Pacific Seeds decided that it wanted to increase the size of the hybrid production and the production of the female parent so more seed was available for marketing of this hybrid in 2002. The company therefore imported the following additional parent seed in September 2001:
- 7 units of UX26/UX77 Q51C1A-7078
 - 3 units of IK88 S35C1T-9367
87. Relevant parts of the packing list numbered 11006 and the pro-forma invoice numbered 090501C are attached, together with Phytosanitary Certificate No. 6216340 and MAF Biosecurity Clearance B2001/57117, as part of Annexure D. The weight shown on the phytosanitary certificate of 700 pounds of corn seed is correct, however a clerical error occurred when the second shipment was made. While the packing list and pro-forma invoice show 13 bags of seed that were actually shipped, the phytosanitary certificate shows 10 bags. The same US manager was responsible and has confirmed that 13 bags were shipped and inspected.
88. These are the same lines and batch numbers as originally imported so additional PCR testing was considered to be unnecessary.

89. The seed was treated with Gaucho (a seed dressing) by Pacific Seeds in Hamilton and the seed was repacked into the original bags prior to supply to Corson Grain for planting at Gisborne.
90. The treatment plant and bagging hopper in Pacific Seeds' Hamilton facility were cleaned prior to treating the first batch and between each subsequent batch as part of the hygiene and Quality Management Programme.
91. The eight units of UX26/UX77 Q51C1A-7078 was supplied to Corson Grain as 821093x821094 and the four units of IK88 S35C1T-9367 was supplied to Corson Grain as 821082. This is confirmed in the statement from Paul Newell (Maize Breeder, Pacific Seeds) attached part of Annexure D.
92. Corson Grain was contracted to grow these two parent lines to produce M500, and seed production was undertaken on only one site in the Gisborne area.
93. In addition, the male was grown on a further site in the area to multiply seed numbers for use in 2002.
94. The female parent seed was grown from UX26(821093) batch number P31C1-6110 and UX77(821094) batch number Q31C1A-7062.
95. The UX26(821093) batch P31C1-6110 was used to produce the original batch of UX26/UX77 (821093x821094) batch Q51C1A-7078 and therefore must be clear of GMOs.
96. The UX77(821094) batch Q31C1A-7062 was produced in US in 1997. At that time Pacific Seeds' supplying company was not producing transgenic seed in the field.
97. Normal crop husbandry ensued with the hybrid crop and parent seed crops being harvested.
98. After harvest, dehusking, drying and shelling the M500 was held in bulk bags.
99. A representative sample of the hybrid was taken during this process and provided to Pacific Seeds for PCR testing. This sample was submitted to GeneScan as PS3 and given the designation GSA 02-537.
100. Results of this test showed that screening for GMO (35S promoter) was positive and the screening for GMO (NOS terminator) was negative.
101. Pacific Seeds advised New Zealand MAF on 7 August 2002 and this was again discussed at a meeting in Wellington on 8 August 2002. Full details of all GeneScan results completed in relation to this sample are included.

AE36 (Grown at Pukekohe)

102. In September 2001 Pacific Seeds imported male and female parent seed to allow the production of hybrid AE36 in New Zealand. Attached in Annexure D are the relevant parts of commercial invoice No. 12584, the Phytosanitary Certificate No. 6357403 and the Biosecurity Clearance No. B2001/57707.
103. The female 3HDA9/0940 batch F4523J715T (approximately 356 kgs) and the male 3IIH6/6207 Batch F5-22N790T (approximately 102 kgs) were PCR tested by Monsanto prior to shipping.
104. At the time of shipment Pacific Seeds was advised by email from Monsanto that the PCR results were clean, as set out in Annexure A. As a result of the present inquiry, Pacific Seeds requested copies of the certificates from Monsanto and the response is included in two Monsanto Quality Shipping Documents attached as part of Annexure D.
105. The seed arrived in New Zealand, was treated with Gaucho by Pacific Seeds, and the seed repacked into the original bags prior to supply to Seed Solutions.
106. The treatment plant and bagging hopper were cleaned prior to treating the first batch and between each subsequent batch.
107. The seed was supplied to Seed Solutions and transported to Pukekohe for planting.
108. Hybrid seed production was undertaken in 10 plots on the Pukekohe research farm and in one additional plot in the Puni area.
109. In addition to this, the male and female parent seeds were also multiplied on one site each at Pukekohe and Waiuku respectively.
110. Normal crop husbandry ensued and all the hybrid plots were harvested during May and June 2002. The male and female plots were harvested in April 2002.
111. After de-husking, drying and shelling, the AE36 seed was placed into large bags and transported from Pukekohe to Gisborne to be processed and sized ready for bagging. A copy of the transport invoice is attached in Annexure D. The reproduced male and female seed was held at Seed Solutions pending production decisions for 2002/03.
112. Samples were sent for germination testing and a sample from the Puni site (the largest hybrid production area) was drawn from AE36 for PCR testing at GeneScan. This sample was submitted as PS2 and given the designation GSA 02-536.
113. Results of this test showed that screening for GMO (35S promoter) was positive and the screening for GMO (nos terminator) was negative.
114. On the basis of this information Pacific Seeds decided to advise MAF on 7 August 2002 of the circumstances that had arisen. The information was discussed in more detail at a meeting in Wellington on 8 August 2002. Full details of all GeneScan results completed in relation to this sample are included in Annexure A.

Proposed Post Control Procedures

115. As *Zea mays* is a species that germinates readily once soil temperatures are above 15C, with hard seed and or dormancy rarely encountered, Pacific Seeds believes that site control should apply until March 2003. Seed will either germinate or will rot as soon as temperatures reach optimum levels in spring.
116. The fields are in various stages recropping from standing maize stubble through to pasture now established, so a varied approach is suggested dependant upon the stage each field is currently at. (Refer Pukekohe and Gisborne Update Data Sheets)

Where the fields are fallow and maize stubble is intact –

- Stubble mulch or lightly rotary hoe as soon as possible to breakup stubble.
- Plough as soon as practically possible to incorporate stubble.
- In the event that wet weather delays ploughing, and maize seeds remaining on the fields germinates, spray with a knockdown herbicide such as glyphosate.

Where fields are fallow with maize stubble incorporated into the soil

- Cultivate the fields on at least three separate occasions to remove any emerged volunteer maize plants and to encourage viable seed remaining in the soil to germinate.
- There should be a period 10 days between cultivations to allow germination to occur.
- As soon as practically possible, plant the fields with a crop to protect against erosion and limit the financial impact on farmers involved.
- Pacific Seeds suggests the crop should be one of the following options –

Pukekohe	Gisborne
• Pasture grass	• Pasture grass
• Peas	• Squash
• Potatoes	• Seed maize
• Seed maize	

- The option of planting seed maize is a sound and quite feasible option to consider as this crop is intensely managed from seeding through to harvest. This means any volunteers would be closely monitored and promptly removed. Pacific Seeds would NOT encourage planting of commercial maize or sweetcorn.
- The fields planned for maize seed should not be seeded prior to November 7 following cultivation to kill volunteer maize and encourage remaining seeds to germinate in the September and October period.
- The seed maize crop should be limited to single cross types where both parents planted are inbreds. As all volunteer maize plants will be hybrids, they will be extremely obvious amongst the inbred plants.
- Maize is normally grown on a 75 cm row spacing and is inter-row cultivated to remove volunteer plants and to apply side dress fertiliser when the plants are about knee high.
- Rogueing for removal of any remaining hybrid plants is a normal procedure in all maize seed grown world wide. Roguing normally occurs in the stage up to flowering, when all female plants are detassled to remove anthers and thus any

potential for pollen shed on that portion of the maize plants. Maize seed is normally grown at a ratio of 75% female to 25% male (pollinating plants).

Where fields are already seeded to pasture or a crop

- Monitor throughout the spring and summer for volunteer maize plants and remove them by physical removal or heavy grazing at the earliest stage possible.

Inspections

- Pacific seeds shall inspect all the sites on a 2 week cycle from Sep 1 through Oct 31 and on a monthly cycle from Nov 1 2002 to Mar 31 2003.
- Pacific Seeds shall maintain written records of each inspection and shall include a count of the number of maize plants located at each site on each inspection.
- Plants shall be removed/controlled within 7 days of that inspection, (weather permitting).
- MAF shall provide an auditing procedure during the summer. If maize seed is to be grown at any site, MAF will inspect and sign off as acceptable before planting occurs, which in any case shall not be earlier than Nov 7 following MAF inspection and 3 cultivations of each field in the period from Sept 1 to Oct 31.
- Pacific Seeds shall notify MAF within 24 hours and make its records available if live volunteer maize plants are observed at the sites in the period Nov 1 to Mar 31.
- Provided no volunteer maize plants are observed in the last two inspections, (Mar. 2003) monitoring shall cease at this time and landowners will have no further restrictions applied.
- If maize plants are observed in these last two inspections, a mutually agreeable strategy should be determined at such time, between, Pacific Seeds, MAF and the landowner.

Proposed Quality Assurance Provisions

Introduction

117. Reducing the risk of future introduction of adventitious GM material in the company's conventional maize products is crucial for Pacific Seeds' future participation in the New Zealand maize seed business. In the 2002/03 season, Pacific Seeds will not continue its maize seed business. However, the company intends to return to the market in 2003/04. Prior to doing so, the company plans to review its procedures governing the importation of maize seed into New Zealand.
118. Outlined below is the proposed review that Pacific Seeds will undertake in order to develop a revised Quality Assurance Programme.

Scope

119. The review will focus on seed that has been introduced to Australia or New Zealand in the past as well as procedures for future introductions. Prior to adopting new procedures the company will comparatively evaluate the requirements in Australia governing direct imports from the US.

Personnel

120. A multi-disciplinary review group will be formed comprising the following:

Technical Manager
Quality Control Manager
Advanta Biosafety Manager
Regional Research Coordinator
Production Manager
International Division Manager

Timescale

121. This review will be completed by December 31 2002.

Approval Process

122. The Review Group will submit its plan to the Management Board of Pacific Seeds and the Advanta Regional Director for approval. The Company's internal QA procedures are confidential, and it is not proposed that this information be supplied in detail to MAF or ERMA. However, an overview that outlines the issues reviewed and generally notes the conclusions of the review can be supplied.

Annexure A – PCR Test Results Methodology

Annexure B – Site Maps

Annexure C – Separation Mechanisms

Annexure D – Accounting for Seed

Annexure E – Photographs

ADDENDUM TO BRIEFING PAPER FOR MINISTRY OF AGRICULTURE AND FORESTRY

AUGUST 2002

Further to the information requested by the Ministry of Agriculture and Forestry on 8 August 2002, Dr Gerard Clover requested the following additional information from Pacific Seeds on 26 August 2002:

- Details of the maize cultivars that were grown last season on blocks 22 and 32 in the Crop and Food site in Pukekohe.
- Details of the measures taken to control volunteer plants of *Zea mays* on blocks 1, 4, 6, 10, 12, 13, 15, 16, 18 and 19.

Pacific Seeds understands that those details are as follows:

- Blocks 22 and 32 were used for hybrid maize variety trials. This is likely to have included a very large number (greater than 50) individual hybrids from many different sources.
- Blocks 1–19 were cultivated in Autumn, with a subsequent cultivation in Spring. Pre-emergence applications of Roundup were also used, and no volunteer plants were observed during a post-trial inspection in February 2002.

Annexure A

PCR Test Results Methodology

Parents of M500



Pty Ltd.

GeneScan Australia

ABN 33 088 634 191

Jim McAuley
Pacific Seeds Pty Ltd
P.O. Box 337
Toowoomba
QLD 4350

Fax: 07 4630 1063

4 July 2001

Comment on Report of Sample No. GSA01-236

The sample does not contain transgenic DNA sequences, which are characteristic for different genetically modified plants.

One target of the PCR analysis was the 35S promoter from Cauliflower Mosaic Virus, which is characteristic for diverse genetically modified plants, e.g. the so-called Roundup Ready™ (Monsanto) soybeans and the Bt176 maize (Novartis). The other target of the PCR analysis was the terminator of the nopaline synthase gene (nos), which is characteristic for diverse genetically modified plants, e.g. the so-called Roundup Ready™ (Monsanto) soybeans but not the Bt176 maize (Novartis).

A handwritten signature in black ink, appearing to read "M. Smithwick".

Megan J. Smithwick

GeneScan Australia

Suite 19
Technology Enterprise Centre
2 Park Drive
Bundamba, Victoria 3083

Phone: (03) 9479 5055
Mobile: 0407 044 784
Fax: (03) 9479 5056

E mail: info@genscan.com.au
Internet: www.genscan.com.au

Parents of M500



Pty Ltd.

ABN 33 088 634 191

GeneScan Australia

Jim Mc Auley
Pacific Seeds Pty Ltd
P.O. Box 337
Toowoomba
QLD 4350

Fax: 07 4630 1063

job no. 2001.086
4 July 2001

Report on the Analysis of Sample No. GSA01-236

Customer / date of order:	Pacific Seeds Pty Ltd / 22.06.01
Description of sample / packaging:	Maize kernels / Plastic bag
Order coding:	NZD
Sample labelling:	"as above"
Order:	screening 35S and nos
DNA extraction method:	GSE-KS-01e/R-03e
Date of reception:	29.06.01
Begin / end analysis:	29.06.01 / 02.07.01
Weight of sample / amount analysed	1700g / 2x 10g
Primer system / detection limit	GSE-PO4.57 / < 10 copies/ PCR
Primer system / detection limit	GSE-PO4.58 / < 10 copies/ PCR

Screening for CMO (35S promoter) was negative.
Screening for GMO (nos terminator) was negative.

A handwritten signature in dark ink, appearing to read 'Megan J. Smithwick'.

Megan J. Smithwick, BSc (Hons) PhD

GeneScan Australia Pty Ltd will not be liable for any direct or indirect damage in connection with the above results. The results presented refer only to the proportion of the sample that was submitted to the test and does not need to be representative of the product from which the sample was taken by the customer. Partial duplication and/or publishing of the report on the analysis needs written permission of GeneScan Australia Pty Ltd.

GeneScan Australia

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Email: info@genscan.com.au
Internet: www.genscan.com.au

A small version of the GeneScan Australia logo, consisting of a grid of dots.

Parents of AE36

From: Brian Hare
Sent: Thursday, 15 August 2002 8:56 AM
To: Howard Morris
Cc: Nick Gardner
Subject: FW: Certificates for PAC Seed Inbreds

Importance: High
Howard,

Attached are the quality certs for the DK parent lines.
I have spoken to Glen Austin (Monsanto St Louis, ph
of the certs to confirm the results show no trace of GM, according to the Monsanto
standards quoted.

Give me a call if you need more info.
), author

Best regards
Brian Hare

Business Manager - Pacific Seeds Pty Ltd
Research Manager - Asia/Africa (Advanta)

Tel: 61 (0) 7 4690 2666
Fax: 61 (0) 7 4630 1063
Mob: 61 (0) 419 023 592
Email: brian.hare@pacseeds.com.au

Disclaimer:

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-----Original Message-----

From: HUDSON, DAVID J [AG/5020] [SMTP:david.j.hudson@monsanto.com]
Sent: Thursday, August 15, 2002 8:31 AM
To: Brian Hare (E-mail); Chris Bazley (E-mail); Nick Gardner (E-mail)
Cc: AUSTIN, GLENN D [AG/1000]; JAMIESON, ROD A [AG/5410]; BLOWES, BILL M [AG/5020];
BUNN, TERRY J [AG/5020]; EKE, KEVIN H [AG/5020]; HALLMAN, BILL R [AG/5340];
KANTANARUMITKUL, CHARUK [AG/5340]; CARRATO, J THOMAS [AG/1000]; HUDSON,
DAVID J [AG/5020]
Subject: Certificates for PAC Seed Inbreds
Importance: High

> Please find attached, certificates for the inbred seed provided to PAC
> Seed for the production of DK477.

>
> Confirmation of Monsanto's PCR testing protocol was on 1100 seed as 11 pools
of 100 seed each. PCR tests were performed for MON810, GA21, BAR and Pat.
Zero defects using this scheme allow one to claim that if GM seed are
present they are less than 0.25% at a 95% level of confidence or less than
0.4% at a 99% level of confidence.

> Please feel free to contact us if additional information is needed.

>
> regards,
>

David Hudson

Parent of AE36

Monsanto Quality Shipping Certificate

Order Number: NZ12584
 Description: 31IH6 / 6207 (MALE)
 Batch: F5-22N790T

Quality Test	Test Value (%)	Test Date	Re-Test or Data Due Date	Lower Quality Level (LQL)% *
Warm Germination (AOSA)	97	Sep-01		90% Female, 80% Male
Monsanto Cold Germination	93	Sep-01		80% Female, 70% Male
Outcrosses (isozyme)	0	Sep-01		3.0%
Tails and Others (growout)	NA	NA		0.5%
RR Roundup Susceptible (field test)	NA	NA		0.5%
Susceptibles (ELISA)	NA	NA		1.0%
Moisture	11.2	Sep-01		9%-13%
%non-white (white corn)	NA	NA		0.1%
Inert	1.8	Sep-01		0.4%
Mechanical Damage	0	Sep-01		3.0%
Disease/Discolored	0	Sep-01		1.0%
Combination (3 above)	1.8	Sep-01		3.0%
PCR seed purity	zero detects	1999		<0.25% @ 95% Level of Confidence

Signature **Keith Oelmann**date: **August 14, 2002**

* LQL is the quality threshold as described by Remund et al in

Remund, K.M., Dixon, D.A., Wright D.L., Holden L.R. "Statistical considerations in seed purity testing for transgenic traits"

Seed Science Research, June 2001, Vol. 11 No. 2, pp. 101-119, which can be downloaded at

www.seedquest.com/best/spreadsheet

Abbreviation Code:

NA = Not Applicable

INC = QUALITY TESTING OF THIS LOT OF SEED IS NOT YET COMPLETE.

Comments:

Lot Shipping Date= 10-Sept-01

Monsanto represented the quality of this seed based upon the sensitivity, selectivity and accuracy of methods which were available, validated and in use for commercial transgenes at the time of the testing

Comment:

James Freed

1257TQC00

11/19/2001

Monsanto Quality Shipping Certificate

Order Number: NZ12584

Description: 3DHA9 / 0940 (FEMALE)

Batch: F4523J715T

Quality Test	Test Value (%)	Test Date	Re-Test or Data Due Date	Lower Quality Level (LQL)% *
Warm Germination (AOSA)	98	Sep-01		90% Female, 80% Male
Monsanto Cold Germination	98	Sep-01		80% Female, 70% Male
Outcrosses (isozyme)	0	Sep-01		3.0%
Tails and Others (growout)	NA	NA		0.5%
RR Roundup Susceptible (field test)	NA	NA		0.5%
Susceptibles (ELISA)	NA	NA		1.0%
Moisture	11.6	Sep-01		9%-13%
%non-white (white corn)	NA	NA		0.1%
Inert	0.09	Sep-01		0.4%
Mechanical Damage	0	Sep-01		3.0%
Disease/Discolored	0	Sep-01		1.0%
Combination (3 above)	0.09	Sep-01		3.0%
PCR seed purity	zero detects	1999		<0.25% @ 95% Level of Confidence

Signature **Keith D Oelmann**

date: **August 14, 2002**

* LQL is the quality threshold as described by Remund et al in

Remund, K.M., Dixon, D.A., Wright D.L., Holden L.R. "Statistical considerations in seed purity testing for transgenic traits"

Seed Science Research, June 2001, Vol. 11 No. 2, pp. 101-119, which can be downloaded at

www.seedquest.com/best/spreadsheet

Abbreviation Code:

NA = Not Applicable

INC = QUALITY TESTING OF THIS LOT OF SEED IS NOT YET COMPLETE.

Comments:

Lot Shipping Date= 10-Sept-01

Monsanto represented the quality of this seed based upon the sensitivity, selectivity and accuracy of methods which were available, validated and in use for commercial transgenes at the time of the testing

Comment:

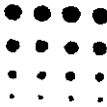
James Freed

1257TQC00

11/19/2001

Parent of A336

U

M500 x AE36
Hybrid Seed **GeneScan** AUSTRALIA

Pty Ltd.

GeneScan Australia

ABN 33 088 634 191

Jim McAuley
Pacific Seeds
ANZAC Avenue
Toowoomba 4350
OLD

Fax: 07 4690 2622

07/08/2007

Comment on Report of Sample No. GSA02-536 and 537

The samples do contain transgenic DNA sequences, which are characteristic for different genetically modified plants.

The detection limit based on the number of particles analysed was 0.5% with a 99% confidence level. One target of the PCR analysis was the 35S promoter from Cauliflower Mosaic Virus, which is characteristic for diverse genetically modified plants, e.g. the so-called Roundup Ready™ (Monsanto) soybeans and the Bt176 maize (Novartis). The other target of the PCR analysis was the terminator of the nopalinn synthase gene (nos), which is characteristic for diverse genetically modified plants, e.g. the so-called Roundup Ready™ (Monsanto) soybeans but not the Bt176 maize (Novartis).

These methods were designed for screening purposes and do not allow the detection of a (single) specific transgenic plant species. In case of a positive result we therefore recommend to perform a specific test.



Megan J. Smithwick, BSc (Hons) PhD

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08/08/2002

Comment on Report of Sample No. GSA02-537

The sample does contain transgenic DNA sequences, which are characteristic for genetically modified BT176 maize.

The detection limit based on the number of particles analysed was 0.5% with a 99% confidence level.

A handwritten signature in black ink, appearing to read 'M Smithwick'.

Megan J. Smithwick, BSc (Hons) PhD

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Job number: 2002.176
08/08/2002

Report on the analysis of Sample No. GSA02-537

Customer:	Pacific Seeds
Date of order:	7.8.02
Description of sample:	Corn
Packaging:	Plastic bag
Order code:	Ps3
Label on sample:	'as above'
Test order:	BT176 maize DNA
DNA extraction method:	GSE-KS01e/R-03e
Date of reception:	2.8.02
Begin analysis:	8.8.02
End analysis:	8.8.02
Sample weight:	1008g
Weight homogenised:	518g (~1400 seeds)
Weight analysed:	2x 12.5g
Primer system:	GSE-PO5.12 (BT176 maize)
Detection limit:	< 10 copies/ PCR

Specific testing for insect resistant GMO (Bt176 maize) was positive.


Megan J. Smithwick, BSc (Hons) PhD

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4

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13/08/2002

Comment on Report of Sample No. GSA02-537

For quantification of the 35S promoter DNA a real time PCR-system (Taqman™) was used.

Different amounts of transgenic maize DNA were analysed in order to generate standard curves for the general maize single copy gene (HMGa) and the 35S promoter from Cauliflower Mosaic Virus which is present in the GMO plants. Deftied aliquots of sample DNA were analysed in the same manner.

By comparing the results of the standard curves with the data obtained from the analysis of the sample DNA, the ratio of the transgenic to non-transgenic DNA was deduced. The 35S promoter DNA in relation to total maize DNA sample is less than 0.05%.

The limit for quantification, given by the amount of maize DNA present in the samples, was 0.05%.


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5

M500

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13/08/2002

Report on the analysis of Sample No. GSA02-537

Customer:	Pacific Seeds
Date of order:	29.7.02
Description of sample:	Corn
Packaging:	Plastic bag
Order code:	Ps3
Label on sample:	'as above'
Test order:	35S promoter maize quantitation DNA
DNA extraction method:	GSE-KS01e/-R-03e
Date of reception:	2.8.02
Begin analysis:	2.8.02
End analysis:	13.8.02
Sample weight:	1008g
Weight analysed:	2x 12.5g
Primer system:	GSE-PO7.20 (35S promoter)
Primer system:	GSE-PO7.10 (corn HMGa)

The 35S promoter DNA content, in relation to the total maize DNA of this sample, is less than 0.05%.

Megan Smithwick, BSc(Hons) PhD

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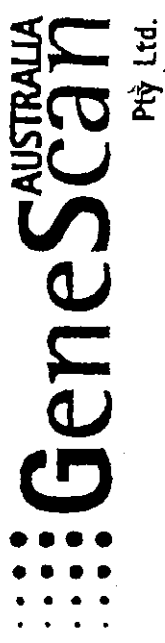
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6

M500



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Report on the analysis of Sample No. GSA02-537

Customer:	Pacific Seeds
Date of order:	29.7.02
Description of sample:	Corn
Packaging:	Plastic bag
Order code:	Ps3
Label on sample:	'as above'
Test order:	Screening 35S and nos
DNA extraction method:	GSE-KS01e/-R-03e
Date of reception:	2.8.02
Begin analysis:	2.8.02
End analysis:	6.8.02
Sample weight:	1008g
Weight homogenised:	518g (~1400 seeds)
Weight analysed:	2x 12.5g
Primer system:	GSE-PO4.58 (35S promoter)
Detection limit:	< 10 copies/ PCR
Primer system:	GSE-PO4.14 (nos terminator)
Detection limit:	< 10 copies/ PCR

Screening for GMO (35S promoter) was positive.
Screening for GMO (nos terminator) was negative.


Megan J. Smithwick, BSc (Hons) PhD

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A036 25

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Job number: 2002.176
07/08/2002

Report on the analysis of Sample No. GSA02-536

Customer:	Pacific Seeds
Date of order:	29.7.02
Description of sample:	Com
Packaging:	Plastic bag
Order code:	Ps2
Label on sample:	'as above'
Test order:	Screening 35S and nos
DNA extraction method:	GSE-KS01e/-R-03e
Date of reception:	2.8.02
Begin analysis:	2.8.02
End analysis:	6.8.02
Sample weight:	648g
Weight homogenised:	434g (~1400 seeds)
Weight analysed:	2x 12.5g
Primer system:	GSE-PO4.58 (35S promoter)
Detection limit:	< 10 copies/ PCR
Primer system:	GSE-PO4.14 (nos terminator)
Detection limit:	< 10 copies/ PCR

Screening for GMO (35S promoter) was positive.
Screening for GMO (nos terminator) was negative.

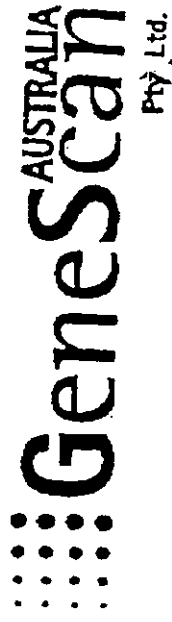


Megan J. Smithwick, BSc(Hons) PhD

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AE 36



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08/08/2002

Comment on Report of Sample No. GSA02-536

The sample does contain transgenic DNA sequences, which are characteristic for the Yieldgard modification present in genetically modified maize like MON802, MON809, and MON810.

The detection limit based on the number of particles analysed was 0.5% with a 99% confidence level.


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Report on the analysis of Sample No. GSA02-536

Customer:	Pacific Seeds
Date of order:	7.8.02
Description of sample:	Corn
Packaging:	Plastic bag
Order code:	Ps2
Label on sample:	'as above'
Test order:	Yieldgard modification DNA
DNA extraction method:	GSE-KS01e/R-03e
Date of reception:	2.8.02
Begin analysis:	8.8.02
End analysis:	8.8.02
Sample weight:	648g
Weight homogenised:	434g (~1400 seeds)
Weight analysed:	2x 12.5g
Primer system:	GSE-POS.17 (Yieldgard modification)
Detection limit:	< 10 copies/ PCR

Specific testing for GMO (Yieldgard modification) was positive.


Megan J. Smithwick, B.Sc.(Hons) PhD

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Comment on Report of Sample No. GSA02-536

The sample does not contain transgenic DNA sequences, which are characteristic for genetically modified Bt 176 maize

The detection limit based on the number of particles analysed was 0.5% with a 99% confidence level

Megan J. Smithwick, BSc(Hons) PhD

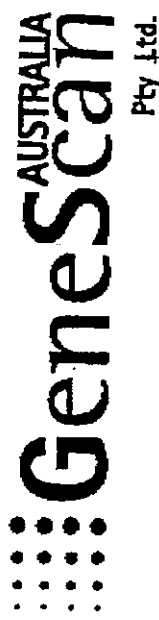
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13/08/2002

Report on the analysis of Sample No. GSA02-536

Customer:	Pacific Seeds
Date of order:	7.8.02
Description of sample:	Corn
Packaging:	Plastic bag
Order code:	Ps2
Labelling sample:	'as above'
Reference:	BT176 maize DNA
DNA extraction method:	GSE-KS01c/-R-03e
Date of reception:	2.8.02
Begin analysis:	8.8.02
End analysis:	8.8.02
Sample weight:	648g
Weight homogenised:	434g (~1400 seeds)
Weight analysed:	2x 12.5g
Primer system:	GSE-PO5.12 (BT176 maize)
Detection limit:	< 10 copies/ PCR

Specific testing for insect resistant GMO (Bt176 maize) was negative.

Megan Smithwick, BSc (Hons) PhD

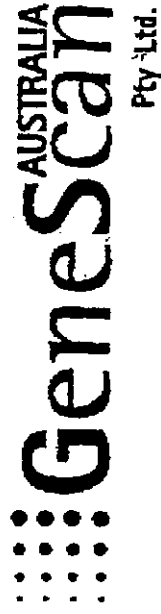
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13/08/2002

Comment on Report of Sample No. GSA02-536

The sample does not contain transgenic DNA sequences, which are characteristic for the Libertylink modification found in Libertylink maize.

The detection limit based on the number of particles analysed was 0.5% with a 99% confidence level.


Megan J. Smithwick, BSc(Hons) PhD

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Job number: 2002.176
13/08/2002

Report on the analysis of Sample No. GSA02-536

Customer:	Pacific Seeds
Date of order:	7.8.02
Description of sample:	Corn
Packaging:	Plastic bag
Order code:	PS2
Label on sample:	'as above'
Test order:	LibertyLink modification DNA
DNA extraction method:	GSE-KS01e/R-03c
Date of reception:	2.8.02
Begin analysis:	8.8.02
End analysis:	8.8.02
Sample weight:	648g
Weight homogenised:	434g (~1400 seeds)
Weight analysed:	2x 12.5g
Primer system:	GSE-PO4.58 (LibertyLink modification)
Detection limit:	< 10 copies/PCR

Specific testing for GMO (Libertylink modification)
was negative.

MS
Megan J Smithwick, BSc (Hons) PhD

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Comment on Report of Sample No. GSA02-536

For quantification of the 35S promoter DNA a real time PCR-system (Taqman™) was used.

Different amounts of transgenic maize DNA were analysed in order to generate standard curves for the general maize single copy gene (HMGa) and the 35S promoter from Cauliflower Mosaic Virus which is present in the GMO plants. Defined aliquots of sample DNA were analysed in the same manner.

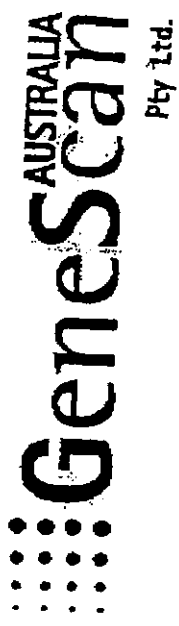
By comparing the results of the standard curves with the data obtained from the analysis of the sample DNA, the ratio of the transgenic to non-transgenic DNA was deduced. The 35S promoter DNA in relation to total maize DNA sample is less than 0.05%.

The limit for quantification given by the amount of maize DNA present in the samples was 0.05%.

MS
Megan J. Smithwick, BSc (Hons) PhD

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Job number: 2002.176
13/08/2002

Report on the analysis of Sample No. GSA02-536

Customer:

Pacific Seeds

Date of order:

7.8.02

Description of sample:

Corn

Packaging:

Plastic bag

Order code:

PS2

Label on sample:

'as above'

Test order:

35S promoter maize quantitation DNA

DNA extraction methods:

GSE-KS01 w-R-03e

Date of reception:

2.8.02

Begin analysis:

8.8.02

End analysis:

9.8.02

Sample weight:

648g

Weight analysed:

2x 12.5g

Primer system:

GSE-PO7.20 (35S promoter)

Primer system:

GSE-PO7.10 (corn HM(Ga))

The 35S promoter DNA content, in relation to the total maize DNA of this sample, is less than 0.05%.

Megan J. Smithwick, BSc (Hons) PhD

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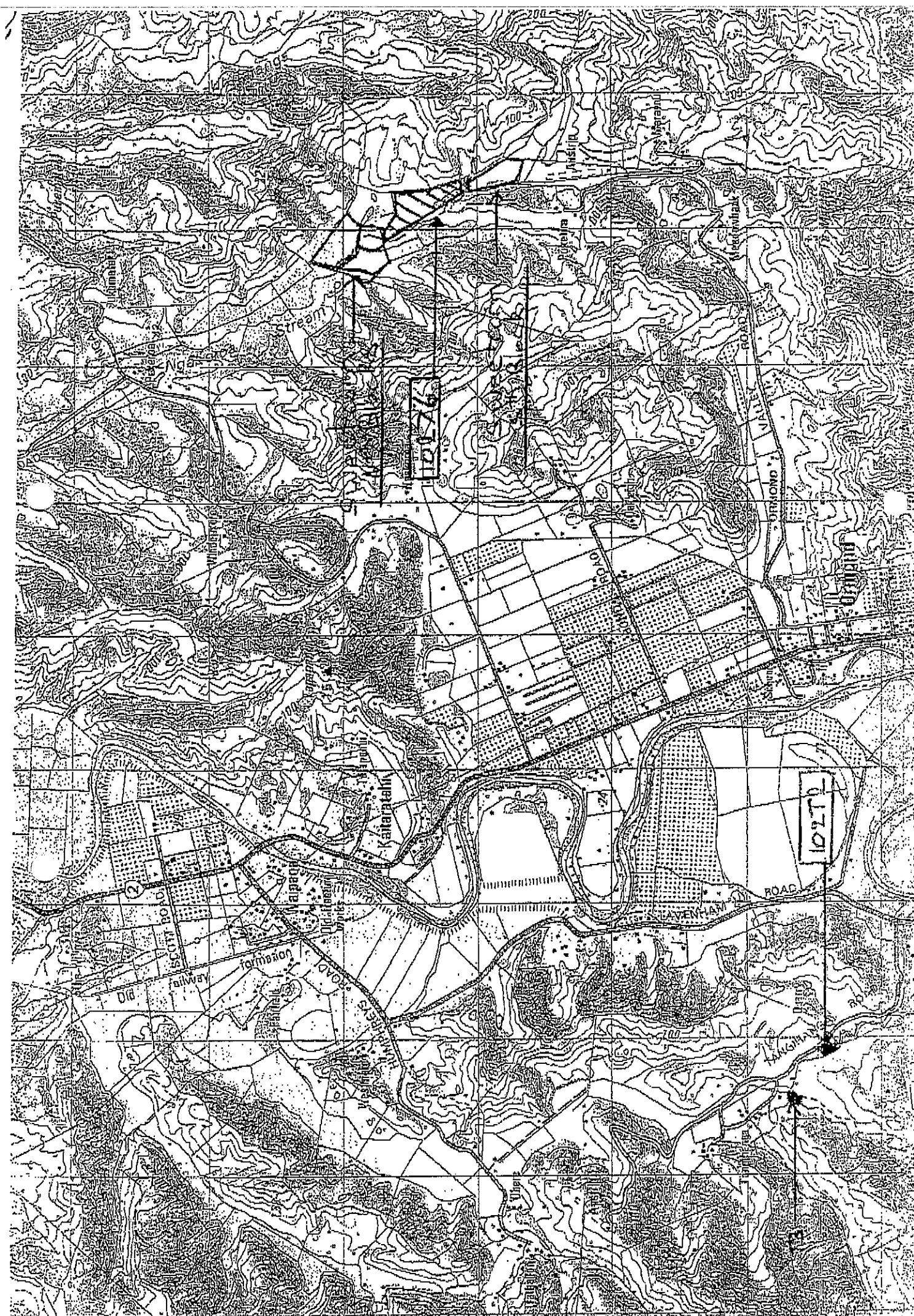
Suite 19
Technology Enterprise Centre
7 Park Drive

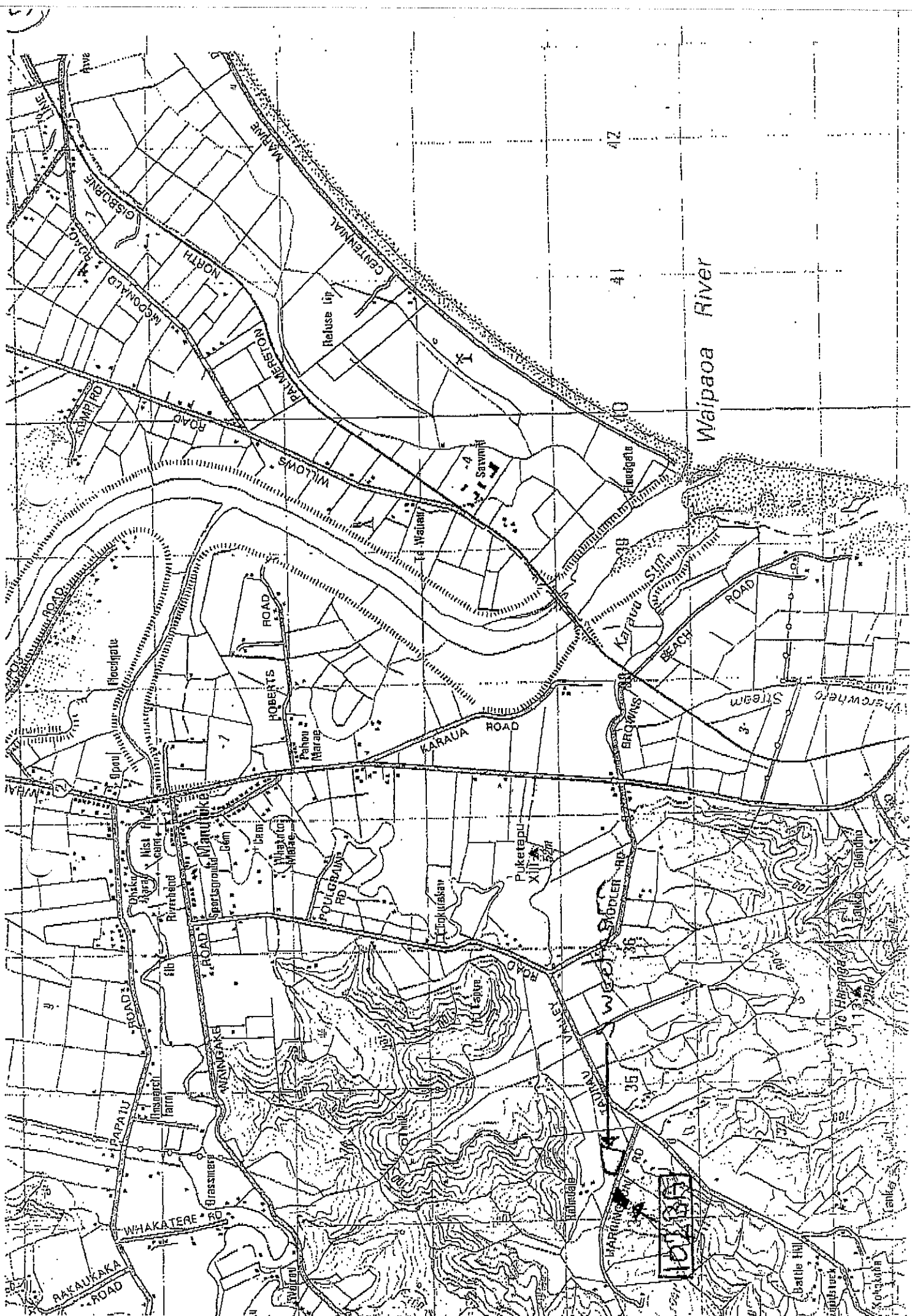
Phone: (07) 8479 5055
Mobile: 0407 044 784
Fax: (07) 8479 5052

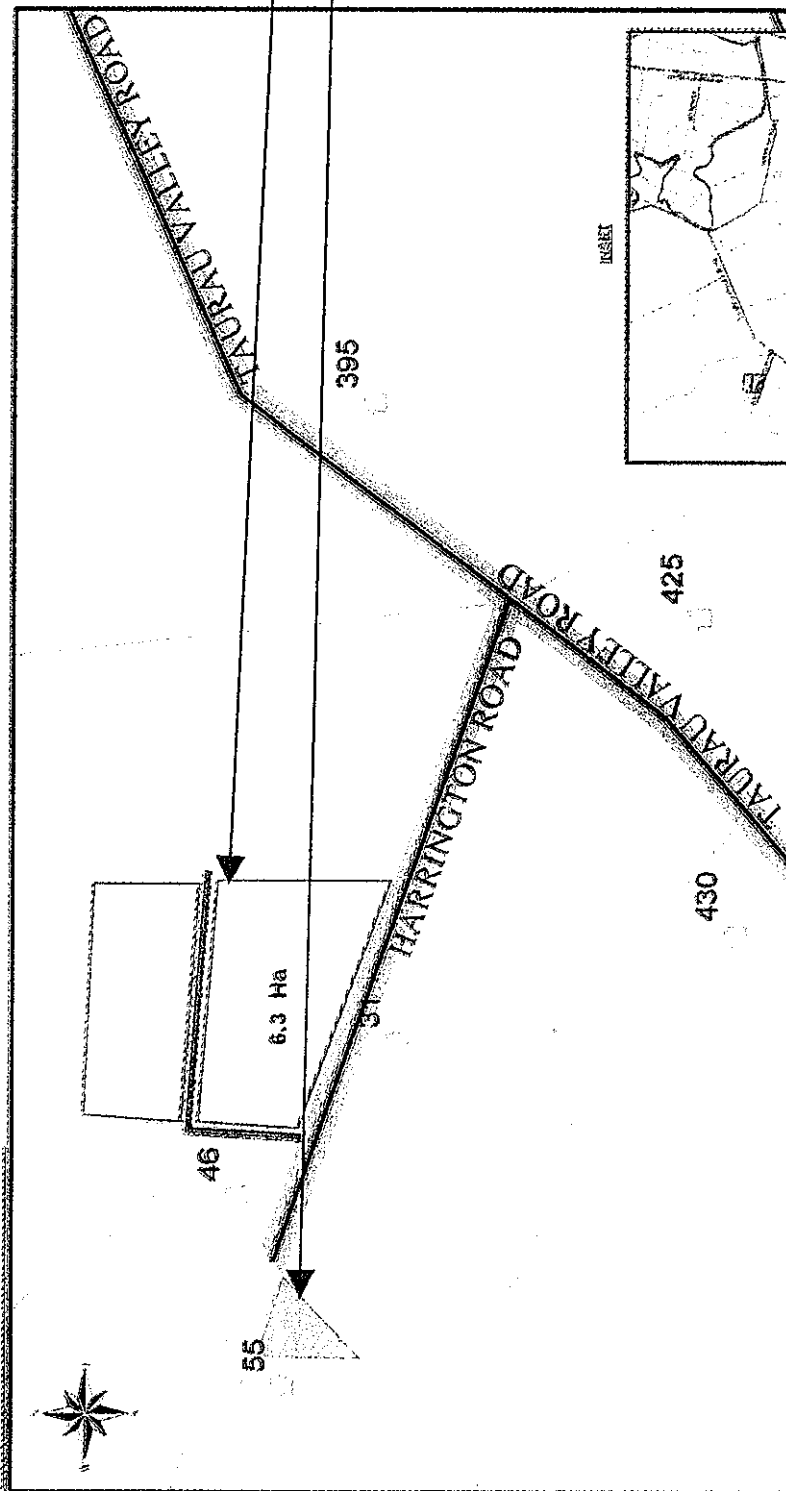
Email: info@genescan.com.au
Internet: www.genescan.com.au

Annexure B

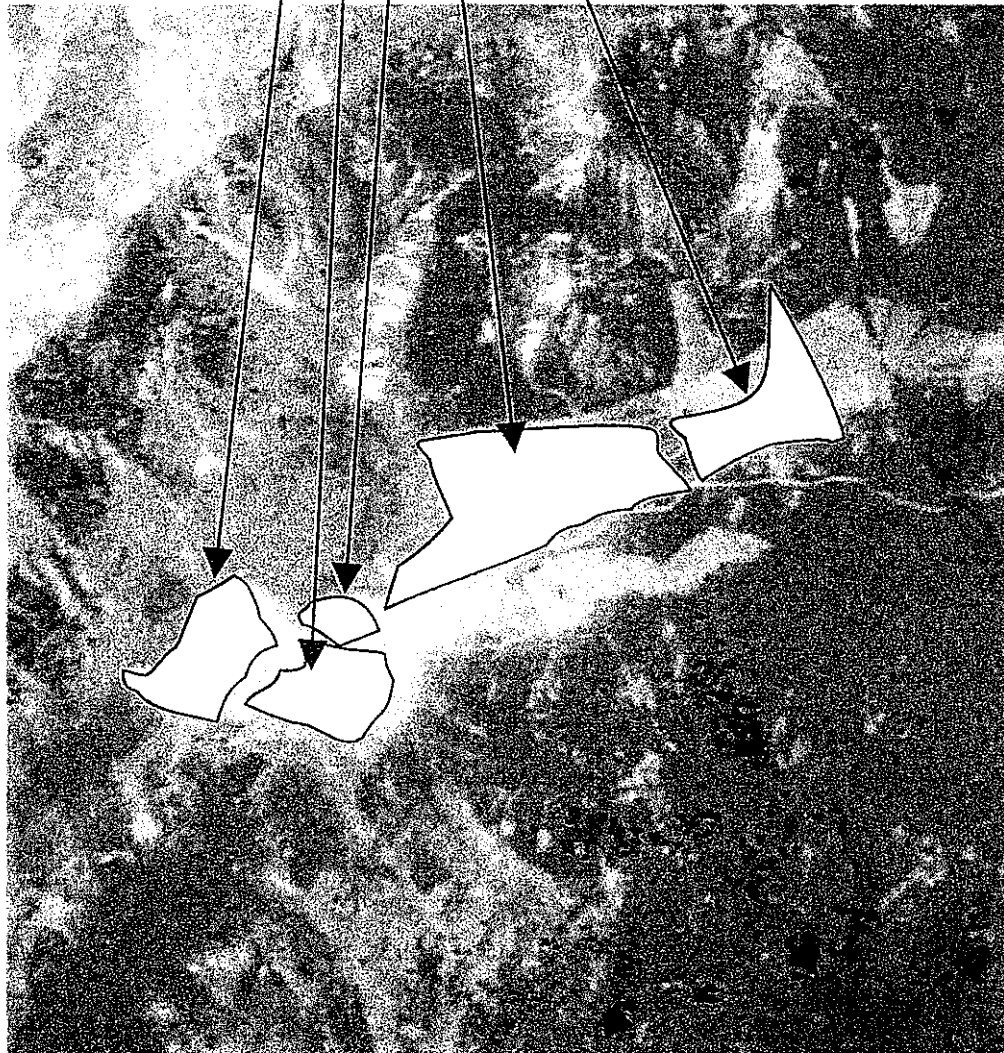
Site Maps







Ormond Valley



Paddock No.

8442-03-00

8442-01-00

8442-02-00

CORSON SEED MAIZE

102 76

8442-04-00

Ha

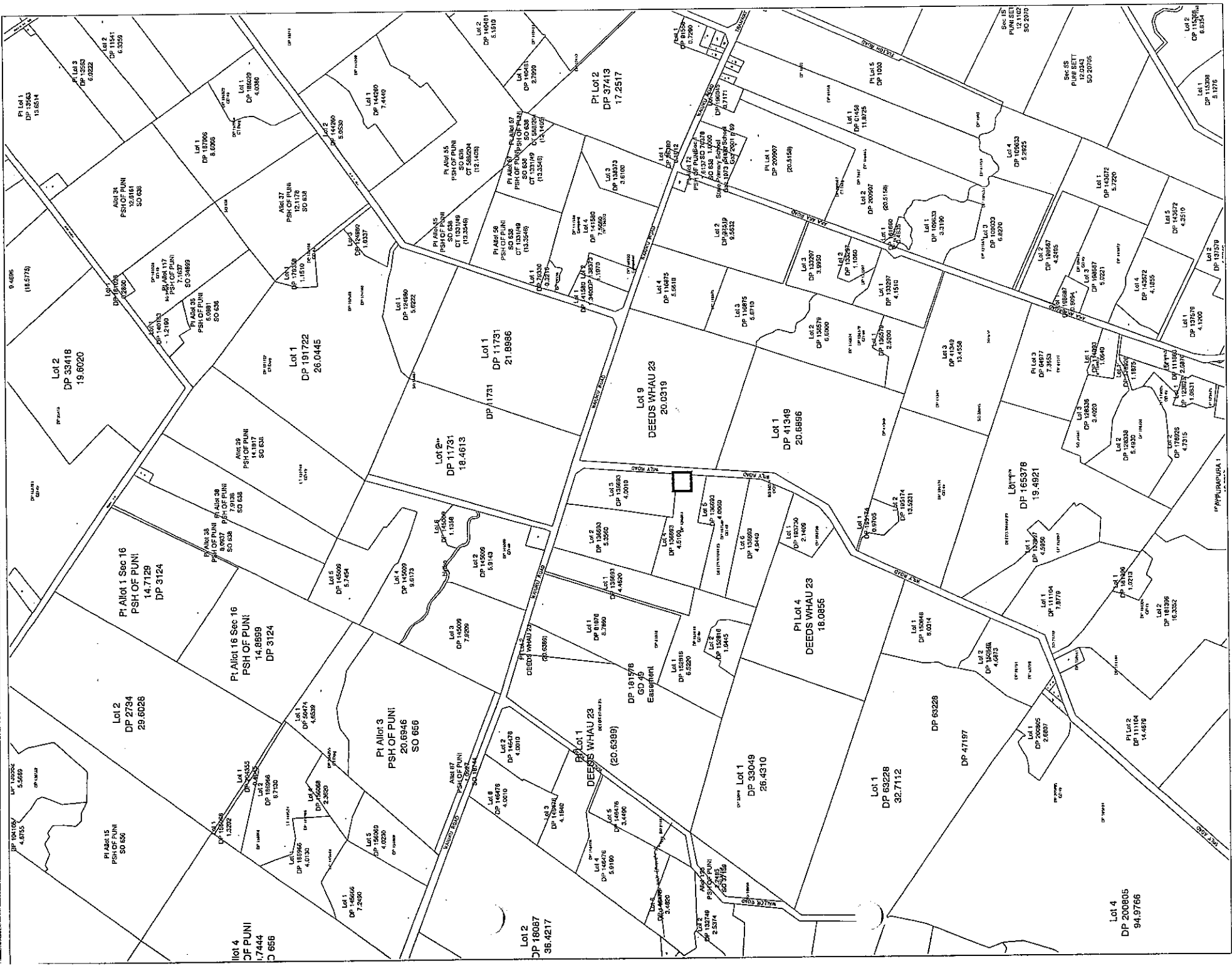
5.30

3.80

1.50

Rows arranged in SE:NW
orientation
orientation with a
headland surrounding the
field of 20 rows (15m)





Scale 1:15000



Lot 2
DP 136693
5.3560

Lot 3
DP 136693
4.0010

Lot 4
DP 136693
4.5100 DP 136693



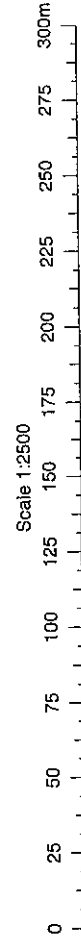
Lot 5
DP 136693
4.0060
MHAU 23 DP 167569
GD 49

Lot 6
DP 136693
4.9440

SO 50324
OCD

WILY ROAD

WILY ROAD



LARGE
PINE
TREES

GRASS

GRASS.

MAIZE
PRODUCTION
AREA.

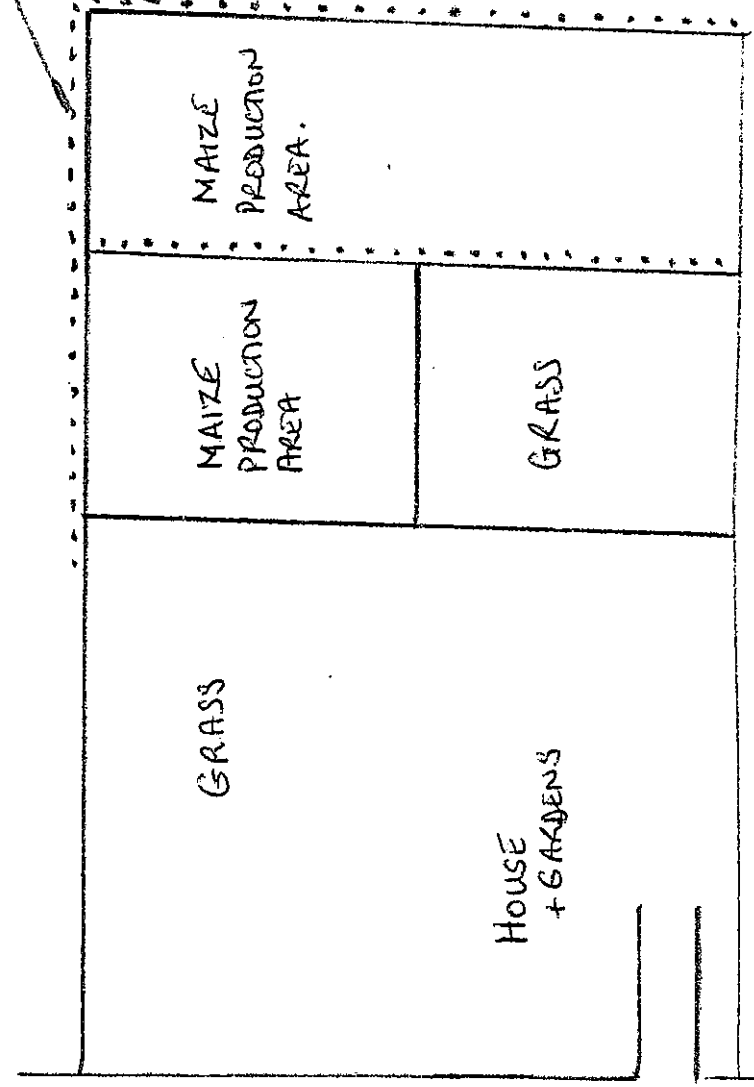
MAIZE
PRODUCTION
AREA

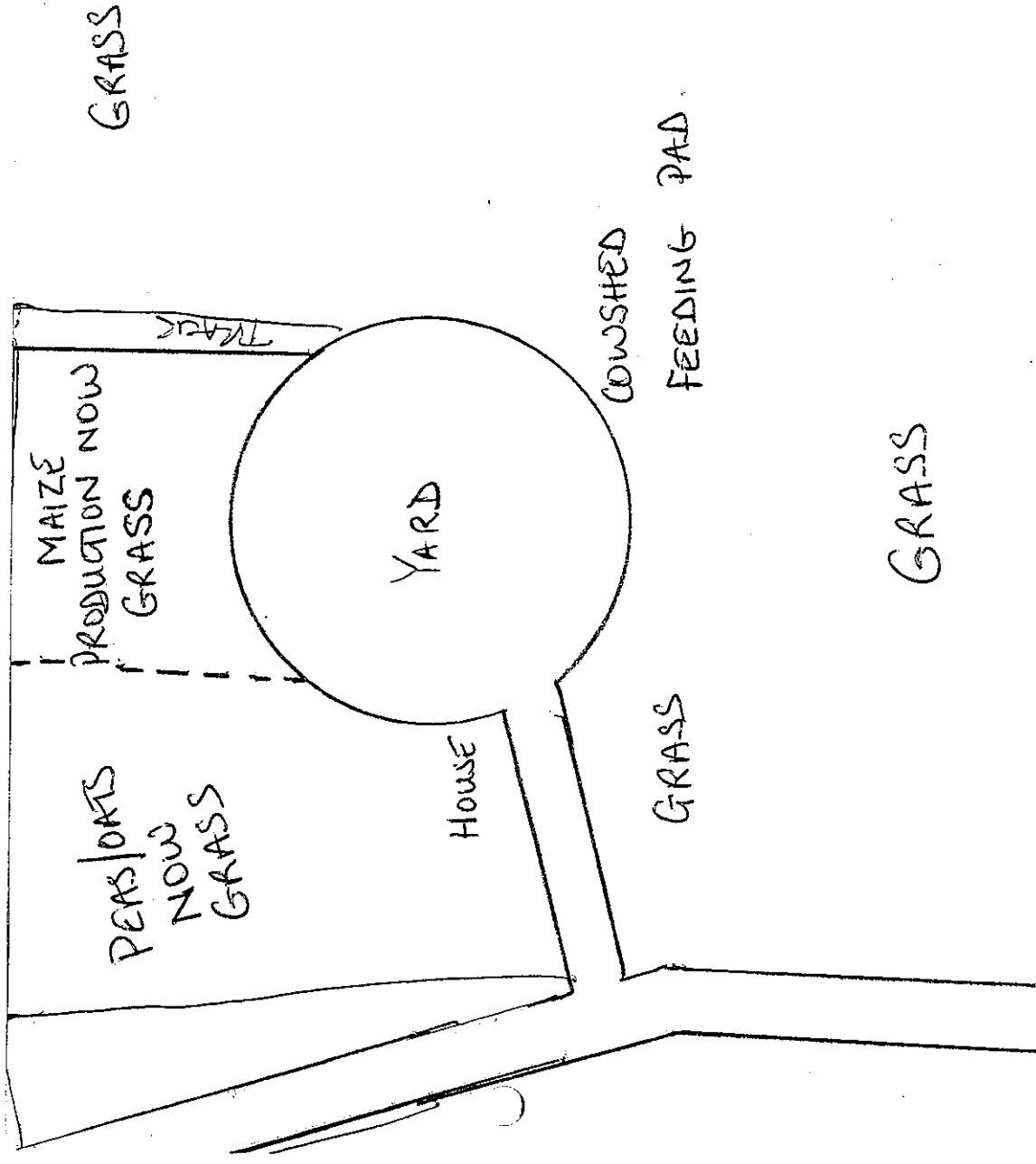
GRASS

GRASS

GRASS

HOUSE
+ GARDENS





PSH OF PUKEKOHE

4.0469

SO 298

CT 762/85

Pt Allot 9

PSH OF PUKEKOHE

4.0469

SO 298

CT 762/78

Lot 5

DP 113112

4.2180

BUCKVILLE RD

10

Lot 1

DP 113112

4.2180

12

Lot 1

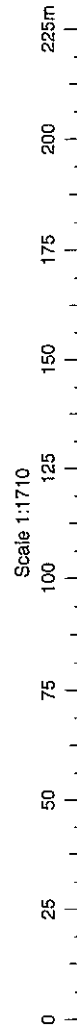
DP 113112

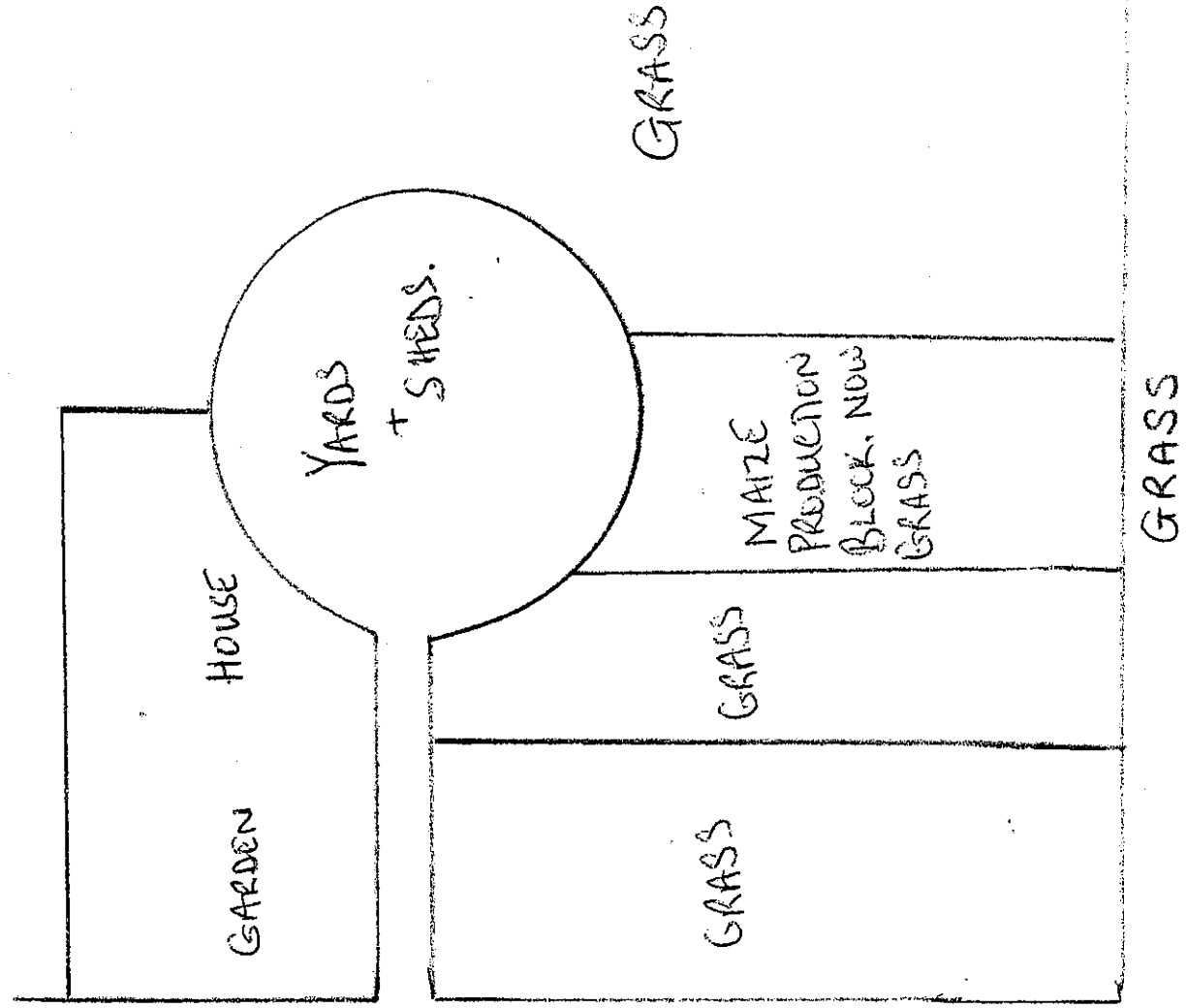
4.2180

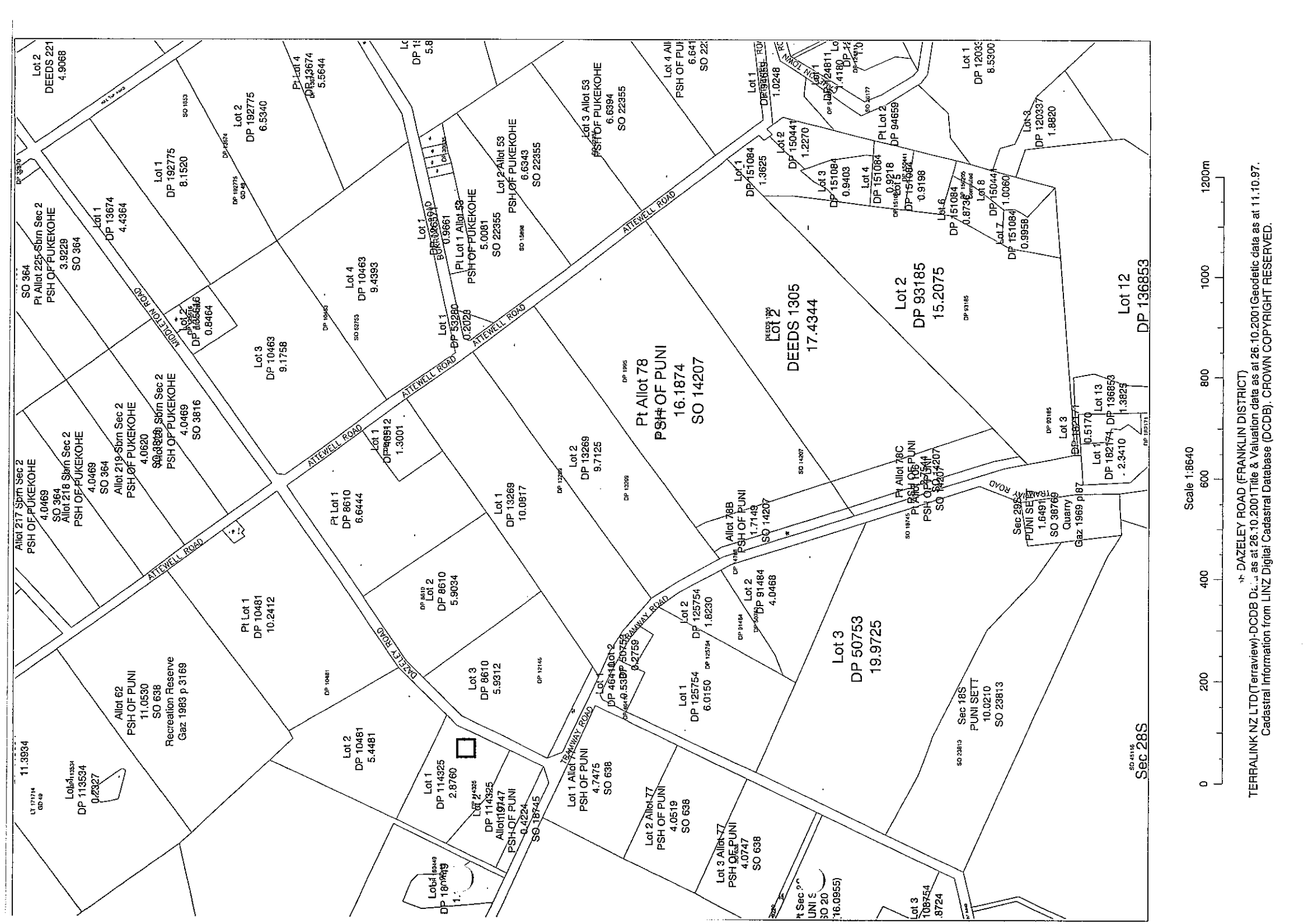
LOGAN ROAD

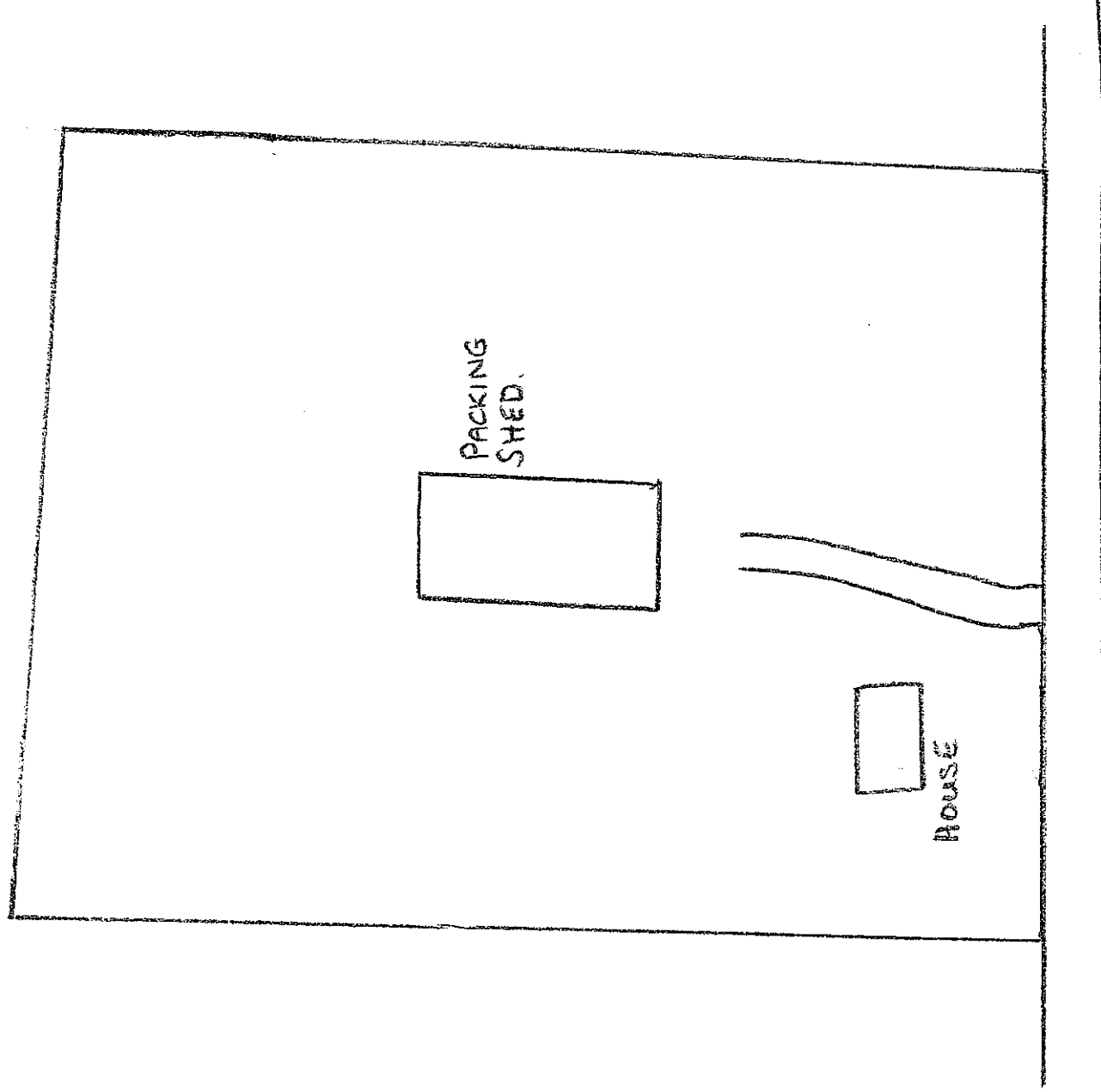
MAIN TRUNK

NORTH ISLAND MAIN TRUNK









Annexure C

Separation Mechanisms

intellectual property rights of Company, and that Company could suffer significant loss or damage if this clause is not complied with strictly by Grower.

- 1.8 The Grower is responsible to ensure that minimum populations, planting times, harvest times and time of male removal does not put the crop yield potential or genetic security at risk.

2. ACCESS

- 2.1 Grower must give Company's representatives access to the Crop and Land, in order to check security, take samples of the Crop, and for the purposes of clause 7, at any time.

3. DELIVERY AND GRADING

- 3.1 Grower must arrange for the Resulting Seed to be graded to the specifications contained herein at the Grower's expense. Seed not meeting the specifications shall not be considered as complying seed and must be disposed of into the feed trade without identification. All grading shall be at the Grower's expense.

- 3.2 Grower will be responsible for the cost of drying the Resulting Seed. Grower will ensure that seed is dried only in a drier approved for drying seed quality maize. Resulting Seed with a moisture content of more than the maximum receivable moisture will not be Complying Seed. Moisture content will be determined by Company.

- 3.3 The Resulting Seed will be tested for germination prior to grading and Complying Seed will be graded.

- 3.4 Gradings and seconds resulting from grading shall be the sole property of the Grower and shall be disposed of into the feed trade without identification.

- 3.5 Any and all costs associated with gradings and seconds resulting from grading shall be the Growers responsibility.

- 3.6 Any Resulting Seed not purchased under this contract (including gradings and seconds resulting from grading) will be disposed of at Grower's cost into the feed trade.

4. PLANTING TIME

- 4.1 Grower will ensure that planting is undertaken at an appropriate time. If arrival of parent seed is delayed to an extent that it delays planting sufficient to adversely affect yield grower will advise company prior to planting.

5. ISOLATION AND CONTAMINATION

- 5.1 Grower must ensure that the whole of the Crop will be isolated from any Contaminating Species in every direction by the distances specified in the Isolation Schedule.

- 5.2 Grower must ensure there are no nearby Contaminating Species.

- 5.3 Grower must ensure that the Land has not had Contaminating Species growing on it (whether occurring naturally or cultivated) prior to the planting of the Crop for at least the time period specified in the schedule for that Contaminating Species.

- 5.4 If clauses 5.1, 5.2 or 5.3 are breached, the Company may at its discretion purchase the Resulting Seed if the Resulting Seed complies with Growout specifications as set out in the Definitions.

Isolation Schedule means:

Contaminating Species	Distance/Time
Sweetcorn	To comply with OECD regulations including distance from contaminating species and time of flowering and male row configurations
Any other corn type	

2. ACCESS

- 2.1 Grower must give Company's representatives access to the Crop and Land, in order to check security, take samples of the Crop, and for the purposes of clause 7, at any time.

3. DELIVERY AND GRADING

- 3.1 Grower must arrange for the Resulting Seed to be graded to the specifications contained herein at the Grower's expense. Seed not meeting the specifications shall not be considered as complying seed and must be disposed of into the feed trade without identification. All grading shall be at the Grower's expense.
- 3.2 Grower will be responsible for the cost of drying the Resulting Seed. Grower will ensure that seed is dried only in a drier approved for drying seed quality maize. Resulting Seed with a moisture content of more than the maximum receivable moisture will not be Complying Seed. Moisture content will be determined by Company.
- 3.3 The Resulting Seed will be tested for germination prior to grading and Complying Seed will be graded.
- 3.4 Gradings and seconds resulting from grading shall be the sole property of the Grower and shall be disposed of into the feed trade without identification.
- 3.5 Any and all costs associated with gradings and seconds resulting from grading shall be the Grower's responsibility.
- 3.6 Any Resulting Seed not purchased under this contract (including gradings and seconds resulting from grading) will be disposed of at Grower's cost into the feed trade.

4. PLANTING TIME

- 4.1 Grower will ensure that planting is undertaken at an appropriate time. If arrival of parent seed is delayed to an extent that it delays planting sufficient to adversely affect yield grower will advise company prior to planting.

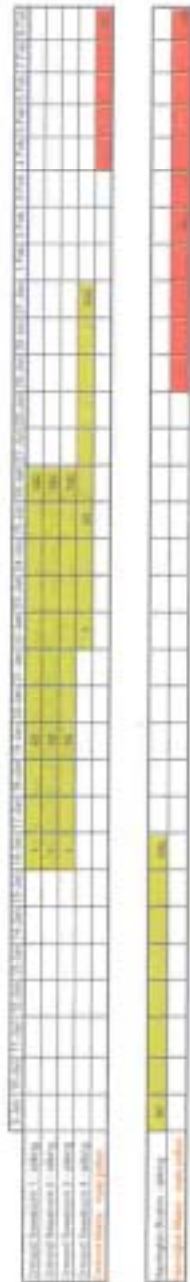
5. ISOLATION AND CONTAMINATION

- 5.1 Grower must ensure that the whole of the Crop will be grown in conditions that meet the OECD certification rules and regulations with regard to distance, time and male row configurations as in the Isolation Schedule.
- 5.2 Grower must ensure there are no nearby Contaminating Species.
- 5.3 Grower must ensure that the Land has not had Contaminating Species growing on it (whether occurring naturally or cultivated) prior to the planting of the Crop for at least the time period specified in the OECD Rules and Regulations.
- 5.4 If clauses 5.1, 5.2 or 5.3 are breached, the Company may at its discretion purchase the Resulting Seed if the Resulting Seed complies with Growout specifications as set out in the Definitions.
- 5.5 If the Resulting Seed delivered to Company under this contract contains other seeds in excess of the Maximum Other Seed Level, Company may at its discretion accept the Resulting Seed. Grower will pay the cost of removal of the contaminating seed.

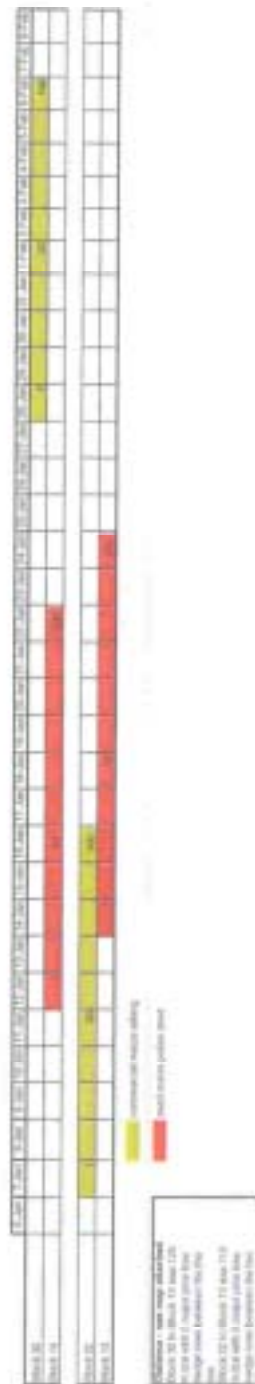
Isolation Schedule means:

Contaminating Species	Distance/Time
Sweetcorn	To comply with OECD regulations including distance from contaminating species and time of flowering and male row configurations
Any other corn type	

Reservoir and mass filling and pollen 2001/2002
Glaciers



Reservoir and other mass filling and pollen 2001/2002
Pollutants



Open Pollinated

Seed produced as a result of natural pollination which when reproduced retains its distinguishing characters.

RULES FOR THE PRODUCTION OF HYBRID MAIZE

Closing Date for Applications

There is no set closing date but applications for certification must be lodged within 14 days of sowing.

Previous Cropping History

There are no requirements as to previous cropping but where maize follows maize one additional inspection must be carried out to determine the freedom of the seed crop from plants, which have volunteered from the preceding crop.

Isolation Requirements

Seed crops must be isolated from any possible source of contaminating pollen.

To produce Basic Seed 400m

To produce 1st Generation Seed 200m

The above isolation distances may be reduced by the sowing of additional border rows of the pollen parent immediately adjacent to the seed crop. These must be sown at the same time as the pollen parent rows within the crop and on the side from which contamination is expected. Each such additional row will equal 10 metres of distance.

Isolation by time will be considered if there are no receptive silks on the seed parent during the period pollen is being shed by the contaminating crop.

Seed Crop Inspection

A minimum of three inspections must be made when the silks of the seed parent are receptive, to determine whether detasselling and isolation requirements have been carried out in a satisfactory manner.

Where maize is sown following another maize crop at least one additional inspection must be made to determine the freedom of the seed crop from plants that have volunteered from the preceding crop. Volunteer plants must not exceed 0.05% immediately prior to detasselling or the commencement of the pollination period of the crop.

The crop must be in a fit state to permit accurate determination of varietal purity. Crops will be rejected from certification in which more than 0.1% of off-type plants in the pollen parent have shed pollen. At the time of last inspection the seed parent shall not contain more than 0.1% of off-type plants.

Detasselling for the Production of Hybrid Varieties

The following applies when 5% or more seed parent plants have receptive silks.

A crop will be rejected from certification if on any one inspection more than 1% of the seed parent plants possess tassels, which have shed or are shedding pollen, or if the total for three inspections on different dates exceeds 2%. Sucker tassels, portions of tassels or tassels on the main plants will be counted as shedding pollen when 50 mm or more of the central stem, the side branches or a combination of the two have their anthers extended from their glumes and are shedding pollen.

Where shedders are observed counts are to be taken throughout the area.

Each count will consist of 200 consecutive plants in a seed parent row or 100 consecutive plants in each of two adjacent seed parent rows.

In crops of 2 ha or less a minimum of 5 counts must be carried out and for areas larger than 2 ha 1 additional count must be made for each 0.5 ha with a maximum of 20.

Inspection must confirm that both the seed bearing and pollen shedding plants are true to the description supplied to the certifying authority.

Male Sterile Seed Parent

A male sterile seed parent can be used to produce Certified Seed by two methods.

- (a) By blending seed produced by the sterile seed parent with seed produced by the fertile seed parent. The ratio of male sterile seed to male fertile parent seed shall not exceed 2 to 1

or

- (b) By using a pollen parent that contains a specific restorer line or lines so that not fewer than one-third of the plants grown from the resulting hybrid will produce pollen, which appears normal in all respects.

MAF "Seed Certification 2001 - 2002 Field & Laboratory Standards"

APPENDIX 2

MINIMUM REQUIREMENTS FOR THE PRODUCTION OF BASIC AND CERTIFIED SEED UNDER THE OECD MAIZE AND SORGHUM SEED SCHEME

A) MINIMUM REQUIREMENTS FOR ALL VARIETIES

1. Previous Cropping

The Designated Authority shall require the grower to provide particulars concerning the previous cropping in each seed field and reject fields when the previous cropping history is not in accordance with regulations published by the Designated Authority.

2. Isolation

2.1 *Zea mays*

2.1.1 Basic Seed

Crops to produce Basic Seed must be not less than 200 m from any source of contaminating pollen.

2.1.2 Certified Seed

Crops to produce Certified Seed must be not less than 200 m from any source of contaminating pollen.

2.2 *Sorghum bicolor and Sorghum sudanense*

2.2.1 Basic Seed

Crops to produce Basic Seed must be not less than 400 m from any source of contaminating pollen.

2.2.2 Certified Seed

Crops to produce Certified Seed must be not less than 200 m from any source of contaminating pollen.

These distances may be disregarded if there is sufficient protection from any source of contaminating pollen.

Annexure D

Accounting for Seed

Chronology of M500

Grown at Gisborne

Garst Seed Co.
 Production Technology
 2349 330th St., PO 500
 Slater, IA 50244
 Phone (515) 685-5011
 FAX (515) 685-5190

Date: March 16, 2000
 Shipped: Pacific Seeds Pty Ltd
 P.O. Box 599
 Waikato Mail Centre
 Hamilton 2015
 New Zealand
 Attn: Paul Kenny

PACKING LIST

<u>Units</u>	<u>Hybrid</u>	<u>Lot</u>	<u>Size</u>
1,008		3D0P	LP
201		W2O2	SP
400		0R3F	SP
40		5Z9I	SP

<u>Units</u>	<u>Inbred</u>	<u>Lot</u>	<u>Size</u>
{ 2 female 1 male		T21C1T-0112 T27C1A-0255	MR MR
{ 1 female 1 male		T21C1T-0112 T27C1A-0256	MR MR
{ 1 female 1 male	UX26/UX77 IK88	Q51C1A-7078 S35C1T-9367	MR MR
{ 2 female 1 male		Q21C1A-7014 Q31C1A-7030	MR PL





Garst Seed Co.
2369 330th St., Box 500
Slater, IA 50244
Phone: (515) 685-5000
FAX: (515) 685-5190

PROFORMA INVOICE 031601A

CONSIGNEE: Pacific Seeds Pty Ltd

DATE: March 16, 2001

ATTN: Paul Kenny

PHONE: 64 25 94 77 06

ADDRESS: P.O. Box 599
Waikato Mail Centre
Hamilton 2015
New Zealand

FAX: 64 78 55 22 20

<u>Units</u>	<u>Description</u>	<u>USD/Unit</u>	<u>Total USD</u>
1649	Hybrid Seed Corn		
10	Inbred Seed Corn		
3 - 20 ft. cnt.	shipping & handling CIF Auckland		

AMOUNT DUE

"WITHOUT COMMERCIAL VALUE - CUSTOMS EFFECT"

I/we hereby certify that the information on this invoice is true and correct and that the contents of this shipment are as stated above.

"These commodities, technology or software were exported from the United States in Accordance with the Export Administration Regulations. Diversion contrary to U.S. law is prohibited."

Signature: *Paul Kenny*

Title: Import / Export Manager



No phytosanitary certificate can be issued until an application is completed (7 CFR 353)

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE

See reverse for additional OMB information.

FOR OFFICIAL USE ONLY

PHYTOSANITARY CERTIFICATE

TO: THE PLANT PROTECTION ORGANIZATION(S) OF

New Zealand

PLACE OF ISSUE

Des Plaines, Illinois

NO:

FPC 4269763

DATE INSPECTED

March 20, 2001

CERTIFICATION

This is to certify that the plants or plant products described below have been inspected according to appropriate procedures and are considered to be free from quarantining pests, and practically free from other injurious pests; and that they are considered to conform with the current phytosanitary regulations of the importing country.

1. DATE		2. TREATMENT	
Year 2000..		DISINFESTATION AND/OR DISINFECTION TREATMENT	
3. CHEMICAL (active ingredient)		4. DURATION AND TEMPERATURE	
Captan 400/NuGro/Apron/Mitavax		5. ADDITIONAL INFORMATION	
5. CONCENTRATION			
650 PPM/8 PPM/20 PPM (0.8 Gr. Al/kg)			

NAME AND ADDRESS OF THE EXPORTER		DESCRIPTION OF THE CONSIGNMENT	
Garst Seed Company 2369 339th Street Slater, Iowa 50244 USA		8. DECLARED NAME AND ADDRESS OF THE CONSIGNEE Paul Kinney, Pacific Seeds 4 Newton Place Hamilton, New Zealand	
9. NAME OF PRODUCE AND QUANTITY DECLARED 33,953.32 Kilograms Corn Seed		10. BOTANICAL NAME OF PLANTS Zea mays	
11. NUMBER AND DESCRIPTION OF PACKAGES 1650 Bags/ 24 Pallets/ 3 x 20' Containers		12. DISTINGUISHING MARKS None	
13. PLACE OF ORIGIN Iowa, Hawaii, Texas, Nebraska, Illinois, Minnesota		14. DECLARED MEANS OF CONVEYANCE Ocean	
		15. DECLARED POINT OF ENTRY Auckland	

Any intentional false statement in this phytosanitary certificate or misrepresentation relative to this phytosanitary certificate is a violation of law, punishable by a fine of not more than \$10,000, or imprisonment of not more than 5 years, or both. (78 U.S.C. §1001)

ADDITIONAL DECLARATION

The Zea mays for sowing in this consignment have been inspected in accordance with appropriate official procedures and found to be free of any visually detectable regulated pests specified by the New Zealand Ministry of Agriculture and Forestry, and to conform with the current phytosanitary requirements of the NZMAF. The Zea mays for sowing in this consignment have been inspected in accordance with the current official procedures and found to be free of the quarantine weed seeds specified by the NZMAF. The Zea mays seeds for sowing in this consignment have undergone appropriate pest control activities that are effective against *Prostephanus truncatus* and *Trogoderma granarium*. The Zea mays seeds for sowing in this consignment have been treated for each regulated pest specified by the NZMAF in Appendix 3 in accordance with the NZMAF approved methods outlined in Appendix 3. New Zealand's List of Approved Declaration Options is attached.

16. DATE ISSUED

March 20, 2001

17. NAME OF AUTHORIZED OFFICER (Type or Print)

Stanley E. Smith

18. SIGNATURE OF AUTHORIZED OFFICER



No financial liability shall attach to the United States Department of Agriculture or to any officer or representative of the Department with respect to this certificate.

PPQ FORM 577
(JUN 96)

Provisions of FPO series may be used

PART 1 - SHIPPER'S ORIGINAL





Ministry of Agriculture and Forestry

Tē Manatu Ahuwhenua, Ngāherehere

B2001/21730

MAF Quarantine Service

Biosecurity Authority/Clearance Certificate

Pursuant to Sections 25 and 26 of the Biosecurity Act 1993

CUSMOD Release Number:

Consignment Reference Number: C2001/13171

The goods that are covered by the authorities in this document have been cleared for entry into New Zealand.
Any Clearance or Authority that is contained in this document, and that relates to forest produce, also constitutes permission to remove the forest produce under the Forest Produce Import and Export Regulations 1989.

All Biosecurity
Requirements Met?
YES

Authority issued to: PACIFIC SEEDS PTY. LTD.

4-6 NEWTON PLACE, HUNTINGTON, Hamilton

Importer: PACIFIC SEEDS PTY. LTD.

Hamilton

Agent: EGL Eagle Global Logistics (Akl) Ltd

Auckland

Arrival Method: Vessel: VLADIVOSTOK Voyage: 271

IDENTIFIERS:

Container Number: TRIU1808359

Container Number: TOLU2444217

Container Number: TEXU3508898

AUTHORITY:

For:

Released (all Biosecurity requirements met)

By:

MAF Quarantine Service (Ham) Hamilton

Authorising Inspector: McLaggan, Jim

Location: Hamilton - City

Date: 20/04/2001

GOODS COVERED BY THIS AUTHORITY:

Type:

1 Seed

Country:

USA

Description:

Zea mays, Corn Seeds 1650.000
bag(s)

Container: TRIU1808359

Container: TEXU3508898

Container: TOLU2444217

Issued by: McLaggan, Jim

Date: 20/04/2001

Location: Hamilton - City

Signed:

Jim McAuley
Pacific Seeds Pty Ltd
P.O. Box 337
Toowoomba
QLD 4350

Fax: 07 4630 1063

4 July 2001

Comment on Report of Sample No. GSA01-236

The sample does not contain transgenic DNA sequences, which are characteristic for different genetically modified plants.

One target of the PCR analysis was the 35S promoter from Cauliflower Mosaic Virus, which is characteristic for diverse genetically modified plants, e.g. the so-called Roundup Ready™ (Monsanto) soybeans and the Bt176 maize (Novartis). The other target of the PCR analysis was the terminator of the nopaline synthase gene (nos), which is characteristic for diverse genetically modified plants, e.g. the so-called Roundup Ready™ (Monsanto) soybeans but not the Bt176 maize (Novartis).



Megan J. Smithwick

SHIP TO: GARY SEED COMPANY

ATTENTION: MARK CARSON

Unit: RES-6P

Address: 2349 330TH ST
P.O. BOX 500

CITY: SLATER LA 50244

Comments: PER NICK GARDNER

Packing No: 11006

Date: 08/24/2001

Needed: / /

Seed Request Number: E-MAIL

Completed 8-21-01 HB

PURCHASE: NEW ZEALAND

Load:

Variety	Lot Number	Size	Seeds Per Lb	Warehouse Location	P / Tot	Ware	Cold	% Purity	Grow Out	Planter Plate	Shipped Quantity	Total Lbs.	Total MYK
UX26-UX77	UX26-UX77-7078MK		2050	523-34	6730	97.3	94.0	99.0	99.8	825	2.00 BAG	550.000	898.13
UX26	UX26-UX77-7078MK	MF	1050	523-34H	9391	99.5	93.5	100.0	828		3.00 BAG	150.000	156.71
UX26	UX26-UX77-7078MK	MF	2360	524-31	0742	96.5	98.0	100.0	99.0	819	1.00 BAG	50.000	113.87
UX77	UX77-UX77-7062	SPL	2890	542-24	5612	90.0	93.0	100.0	100.0		1.00 BAG	50.000	130.05
											1.00 BAG	50.000	96.87

=====

550.000 1195.53

11/09 01 TUE 10:36 FAX
09/10/2001 MON 15:12 FAX 5156845190

Parent Seed Division

*** New Zealand Offi 0003
0004

Garst

Garst Seed Co.
2369 330th St., Box 500
Slater, IA 50244
Phone: (515) 685-5000
FAX: (515) 685-5190

PRO FORMA INVOICE 090501C

CONSIGNEE: Pacific Seeds Pty Ltd

DATE: August 31, 2001

ATTN: Nick Gardner

PHONE: 64 25 94 77 06

ADDRESS: P.O. Box 599

Waikato Mail Centre
Hamilton 2015
New Zealand

FAX: 64 78 55 22 20

<u>Units</u>	<u>Description</u>	<u>Total MVK</u>	<u>USD/MVK</u>	<u>Total USD</u>
13	Inbred Seed Corn	1195.63		
1 -- pallet	shipping & handling CIF Auckland			

AMOUNT DUE

"WITHOUT COMMERCIAL VALUE - CUSTOMS EFFECT"

We hereby certify that the information on this invoice is true and correct and that
the contents of this shipment are as stated above.

"These commodities, technology or software were exported from the United States in Accordance with the Export
Administration Regulations. Diversion contrary to U.S. law is prohibited."

Signature: _____

Title: Import / Export Manager

Member of Advanta

11/09 '01 TUE 10:37 FAX

+++ New Zealand Offi ☒ 005
☒ 008

09/10/2001 MON 15:13 FAX 5156845190

Parent Seed Division

NOTIFICATION OF ENTRY OF SEEDS INTO NEW ZEALAND (16 SEP 2001) (16 SEP 2001)

SEE OVERSHEET FOR ADDITIONAL CMB INFORMATION

FORM APPROVED
DATE 15/09/2001UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE

PHYTOSANITARY CERTIFICATE

TO: THE PLANT PROTECTION ORGANIZATION(S) OF

New Zealand

PLACE OF ISSUE
Des Moines, Iowa

NO. FPC 6216310

DATE ISSUED
August 28, 2001

CERTIFICATION

This is to certify that the plants, plant product or other regulated articles described herein have been inspected and/or tested according to appropriate official procedures and are considered to be free from the quarantine pests specified by the importing contracting party and to conform with the current phytosanitary requirements of the importing contracting party including those for regulated non-quarantine pests.

DISINESTATION AND/OR DISINFECTION TREATMENT

DATE 2000	2. TREATMENT Fungicide and Insecticide
3. CHEMICAL (GENUS/TRADE NAME) Captan-400/Nugro/Ampex/Vitavax	4. TOLERANCE AND TEMPERATURE 100°F/55°F
5. CONCENTRATION 650 PPM/8 PPM/20 PPM/0.8% A.I./R/G	6. ADDITIONAL INFORMATION ELECTRICALLY HEATED 200°F/93°C FOR 10 MIN.

DESCRIPTION OF THE CONSIGNMENT

7. NAME AND ADDRESS OF THE EXPORTER Garst Seed Company 2369 130 th Street Iowa, Iowa 50244	8. TO COUNTRY NAME AND ADDRESS OF THE CONSIGNEE Pacific Seeds, c/o Nick-Gartner 4 Newton Place Hamilton, New Zealand
--	---

9. NAME OF PRODUCE AND QUANTITY DECLARED

700 pounds of corn seed

10. BOTANICAL NAME OF PLANTS

Zea mays

11. NUMBER AND DESCRIPTION OF PACKAGES

10 bags/1 pallet

12. DISTINCTION MARK

BAGS

13. PLACE OF ORIGIN

Iowa, U.S.A.

14. DECLARED MEANS OF CONVEYANCE

Air Freight

15. DECLARED POINT OF ENTRY

Auckland

WARNING: Any alteration, tampering or unauthorized use of this phytosanitary certificate is subject to civil penalties of up to \$250,000 (7 U.S.C. Section 1216(b)) or imprisonment of a fine of not more than \$10,000, or imprisonment of not more than 5 years, or both (16 U.S.C. Section 1501).

see attached sheet

ADDITIONAL DECLARATION

DATE ISSUED

September 4, 2001

16. NAME OF AUTHORIZED OFFICER (16 SEP 2001)

John A. Harn

17. SIGNATURE

[Signature]

Notability shall attach to the United States material (USA material) only if the official seal of the Department of Agriculture is affixed to the respective terminals of the certificate.

18. OVERSEAS (16 SEP 2001) 19. RANGE (16 SEP 2001)

PART 1 - SHIPPER'S COPY



Ministry of Agriculture and Forestry

Te Manatu Ahuwhenua, Ngaherehere

B2001/57117

MAF Quarantine Service

Biosecurity Authority/Clearance Certificate

Pursuant to Sections 25 and 26 of the Biosecurity Act 1993

CUSMOD Release Number: AF100100119266

Consignment Reference Number: C2001/37965

The goods that are covered by the authorities in this document have been cleared for entry into New Zealand.

Any Clearance or Authority that is contained in this document, and that relates to forest produce, also constitutes permission to remove the forest produce under the Forest Produce Import and Export Regulations 1989.

All Biosecurity
Requirements Met?
YES

Authority issued to: EMERY WORLDWIDE LTD

P O BOX 73002, AUCKLAND AIRPORT, Auckland

Importer: PACIFIC SEEDS PTY. LTD.

Hamilton

Agent: EMERY WORLDWIDE

Christchurch

Arrival Method: Flight: CX107 Date: 12/09/2001

IDENTIFIERS:

Bill of Lading: 16078373923

Subbill of Lading: 187566949-9

AUTHORITY:

For:

Released (all Biosecurity requirements met)

By:

MAF Quarantine Service (Akl), Auckland

Authorising Inspector: Baigent, Ted

Location: Auckland - Air Cargo

Date: 18/09/2001

GOODS COVERED BY THIS AUTHORITY:

Type:

1 Seed

Country:

USA

Description:

Zea mays, DENT CORN 10.000
bag(s)

B/L: 16078373923

Sub B/L: 187566949-9

Issued by: Baigent, Ted

Date: 18/09/2001

Location: Auckland - Air Cargo

Signed:

Chronology of AE36

Grown at Pukekohe

COMMERCIAL INVOICE

MONSANTO <i>Food - Health - Hope™</i> MONSANTO AG PRODUCTS LLC 3100 SYCAMORE ROAD DEKALB, ILLINOIS 60115 U.S.A. Telephone: (815) 766-7939 Telefax: (815) 768-9502		INVOICE NUMBER: 12584 CONTRACT NO.: PRINT DATE: 15-Sep-01
BUYER: PACIFIC SEEDS PTY. LTD. INTERNATIONAL 268 ANZAC AVENUE TOOWOOMBA 4350, AUSTRALIA ATTN: MR. RICHARD RAABE		ORIGIN OF GOODS: U.S.A.
SHIP TO: PACIFIC SEEDS LTD. 4 NEWTON PLACE HAMILTON, NEW ZEALAND ATTN: MR. GUY DYER TEL/FAX: 64-7-846-6842 / 64-7-847-2053 MARKS: LOADED ON 1 PALLET		PAYMENT TERMS: OPEN ACCOUNT - DUE 90 DAYS PAYABLE VIA CHECK OR WIRE TRANSFER TO THE ACCOUNT OF MONSANTO AGRICULTURE MAIN CITIBANK, NEW YORK, NY / REF. INVOICE NO. 12584
SHIPPED VIA: AIR FROM: CHICAGO, IL TO: AUCKLAND DATE OF SHIPMENT: 15-Sep-01 VIA: AIR NEW ZEALAND AIRBILL NO. 086-90832921		SHIPPED VIA: AIR FROM: CHICAGO, IL TO: AUCKLAND DATE OF SHIPMENT: 15-Sep-01 VIA: AIR NEW ZEALAND AIRBILL NO. 086-90832921

NET/KG	NO. OF BAGS	U/M	PRODUCT DESCRIPTION	UNIT PRICE	AMOUNT DUE
				USD	USD

ZEYA MAYS / CORN SEED FOR PLANTING

PARENT SEED:

356	16	1.250	MVK	3DH9 / 0940	\$	\$
102	4	368	MVK	3IH6 / 6207		

ZEYA MAYS / CORN HYBRIDS FOR YIELD TRIALS:

2
3
2
3
3
2
3

PRODUCT TOTAL EX WORKS PARKERSBURG, IOWA

INLAND FREIGHT
AIR FREIGHT
DOCUMENTATION & HANDLING

INVOICE TOTAL CIF AUCKLAND, NEW ZEALAND - USD

WE CERTIFY THIS INVOICE TO BE TRUE AND CORRECT.

TOTAL NET WEIGHT: 802 KG
TOTAL GROSS WEIGHT: 937 KG
TOTAL PIECES SHIPPED: 41

MONSANTO AG PRODUCTS LLC

AUTHORIZED SIGNATURE, NORTH AMERICAN SEED EXPORTS

Phytosanitary Certificate can be issued only on application in compliance of CP 349

See reverse for additional QMB information.

QMB NO 6579-0052

UNITED STATES DEPARTMENT OF AGRICULTURE
ANIMAL AND PLANT HEALTH INSPECTION SERVICE
PLANT PROTECTION AND QUARANTINE

PHYTOSANITARY CERTIFICATE

TO: THE PLANT PROTECTION ORGANIZATION(S) OF

PLACE OF ISSUE

Des Plaines, Illinois

NO: FPC 6357403

DATE INSPECTED

September 11, 2001



NEW ZEALAND

CERTIFICATION

This is to certify that the plants, plant-product or other regulated articles described herein have been inspected and/or tested according to appropriate official procedures and are considered to be free from the quarantine pests, specified by the importing contracting party and to conform with the current phytosanitary requirements of the importing contracting party including those for regulated non-quarantine pests.

DISINFESTATION AND/OR DISINFECTION TREATMENT

1. DATE

September 2001

2. TREATMENT

Fungicides

3. CHEMICAL (active ingredient)

CAPTAN, CARBOXIN, METALAXYL, FLUDIOXONIL

4. DURATION AND TEMPERATURE

5. CONCENTRATION

6. ADDITIONAL INFORMATION

A1 Manufacturer's Recommended Rate

DESCRIPTION OF THE CONSIGNMENT

7. NAME AND ADDRESS OF THE SHIPPER

MONSANTO AG PRODUCTS LLC
3100 Sycamore Road
DeKalb, Illinois

8. DECLARED NAME AND ADDRESS OF THE CONSIGNEE

PACIFIC SEEDS LTD.
4 Newton Place
Hamilton, NEW ZEALAND

9. NAME OF PRODUCE AND QUANTITY DECLARED

Corn Seed - 902 Kg.

10. BOTANICAL NAME OF PLANTS

Zea mays

11. NUMBER AND DESCRIPTION OF PACKAGES

41 Bags

12. DISTINGUISHING MARKS

CODE NOS.

13. PL. OF ORIGIN

Iowa, Illinois & Michigan

14. DECLARED MEANS OF CONVEYANCE

Air Freight

15. DECLARED POINT OF ENTRY

Auckland, NEW ZEALAND

WARNING: Any alteration, forgery, or unauthorized use of this phytosanitary certificate is subject to civil penalties of up to \$250,000 (7 U.S.C. Section 7734(a)) or punishable by a fine of not more than \$10,000, or imprisonment of not more than 5 years, or both (18 U.S.C. Section 1001).

ADDITIONAL DECLARATION

The ZEA MAYS seeds for sowing in this consignment have been inspected in accordance with appropriate official procedures as specified by the New Zealand Ministry of Agriculture and Forestry and found to be free of any visually detectable regulated pests, quarantine weed seeds, have undergone appropriate pest control effective against PROSTEPHANUS TRUNCATUS and TROGDERMA GRANARIUM, have been treated for each regulated pest specified by the NZMAF in Appendix 3, and conform with the current phytosanitary requirements of the NZMAF. New Zealand's list of approved declaration options is attached.

16. DATE ISSUED

September 11, 2001

17. NAME OF AUTHORIZED OFFICER (Type or Print)

Michael R. Gaffney

18. SIGNATURE OF AUTHORIZED OFFICER

Michael R. Gaffney

In liability shall attach to the United States Department of Agriculture or to any officer or representative of the Department with respect to this certificate.



Ministry of Agriculture and Forestry

Te Manatu Ahuwhenua, Ngaherehere

B2001/57707

MAF Quarantine Service

Biosecurity Authority/Clearance Certificate

Pursuant to Sections 25 and 26 of the Biosecurity Act 1993

CUSMOD Release Number: AF100100119572

Consignment Reference Number: C2001/38284

The goods that are covered by the authorities in this document have been cleared for entry into New Zealand.

Any Clearance or Authority that is contained in this document, and that relates to forest produce, also constitutes permission to remove the forest produce under the Forest Produce Import and Export Regulations 1989.

All Biosecurity
Requirements Met?
YES

Authority issued to: PACIFIC SEEDS PTY. LTD.

PO Box 599, Waikato Mail Centre, Hamilton

Importer: PACIFIC SEEDS PTY. LTD.

Hamilton

Agent: EGL Eagle Global Logistics (Akl) Ltd

Auckland

Arrival Method: Flight: NZ6981

Date: 19/09/2001

IDENTIFIERS:

Bill of Lading: 08690832921

AUTHORITY:

For:

Released (all Biosecurity requirements met)

By:

MAF Quarantine Service (Akl), Auckland

Authorising Inspector: Shaw, David

Location: Auckland - Air Cargo

Date: 19/09/2001

GOODS COVERED BY THIS AUTHORITY:

Type:

Seed

Country:

USA

Description:

Zea mays, dent 41.000 bag(s)

B/L: 08690832921

Issued by: Shaw, David

Date: 19/09/2001

Location: Auckland - Air Cargo

Signed: 

Nick Gardner

From: Nick Gardner
Sent: Thursday, 6 September 2001 2:08 PM
To: 'CRUGER, TOM [AG/2500]'
Cc: BURKART, JUDY [AG/2500]; CHRISTENSEN, PAUL [AG/2500]
Subject: To Tom Cruger RE: PROFORMA INVOICE NZ12584

Tom, OECD certification of maize is not a mandatory requirement for New Zealand, it's a luxury item only. Please initiate shipment as soon as possible as the key issue is the PCR which you report as clean.

Kind Regards
Nick Gardner

-----Original Message-----

From: CRUGER, TOM [AG/2500] [SMTP:tom.cruger@monsanto.com]
Sent: Wednesday, 5 September 2001 2:20 AM
To: 'Nick Gardner'
Cc: BURKART, JUDY [AG/2500]; CHRISTENSEN, PAUL [AG/2500]
Subject: RE: PROFORMA INVOICE NZ12584

Nick,

Here is the reply I got from the foundation department regarding the two foundation seed items you have ordered:

"I got the transfer I needed for OECD's, samples have been sent in and data should be back in about 10 days, PCR's are clean and isoza on one has been sent in. The other is ok."

As you can see, the delay is getting the seed OECD certified. The PCR results are clean. We are still waiting for one isozyme result. It looks like we are still 10 days before we know we can ship the seed.

Regards.

-----Original Message-----

From: Nick Gardner [mailto:Nick.Gardner@Pacseeds.com.au]
Sent: Monday, September 03, 2001 3:24 AM
To: BURKART, JUDY [AG/2500]; CRUGER, TOM [AG/2500]
Subject: RE: PROFORMA INVOICE NZ12584

Tom, I got the impression when talking to Paul that the PCR work was already done on the parent seed at least. That's the real urgent stuff for us at the moment

Nick

Monsanto Quality Shipping Certificate

Order Number: NZ12584

Description: 3DHA9 / 0940 (FEMALE)

Batch: F4523J715T

Quality Test	Test Value (%)	Test Date	Re-Test or Data Due Date	Lower Quality Level (LQL)% *
Warm Germination (AOSA)	98	Sep-01		90% Female, 80% Male
Monsanto Cold Germination	98	Sep-01		80% Female, 70% Male
Outcrosses (isozyme)	0	Sep-01		3.0%
Talls and Others (growout)	NA	NA		0.5%
RR Roundup Susceptible (field test)	NA	NA		0.5%
Bt Susceptibles (ELISA)	NA	NA		1.0%
Moisture	11.6	Sep-01		9%-13%
%non-white (white corn)	NA	NA		0.1%
Inert	0.09	Sep-01		0.4%
Mechanical Damage	0	Sep-01		3.0%
Disease/Discolored	0	Sep-01		1.0%
Combination (3 above)	0.09	Sep-01		3.0%
PCR seed purity	zero defects	1999		<0.25% @ 95% Level of Confidence

Signature **Keith D Oelmann**

date: **August 14, 2002**

* LQL is the quality threshold as described by Remund et al in

Remund, K.M., Dixon, D.A., Wright D.L., Holden L.R. "Statistical considerations in seed purity testing for transgenic traits"

, Seed Science Research, June 2001, Vol. 11 No. 2, pp. 101-119, which can be downloaded at

www.seedquest.com/best/spreadsheet

Abbreviation Code:

NA = Not Applicable

INC = QUALITY TESTING OF THIS LOT OF SEED IS NOT YET COMPLETE.

Comments:

Lot Shipping Date= 10-Sept-01

Monsanto represented the quality of this seed based upon the sensitivity, selectivity and accuracy of methods which were available, validated and in use for commercial transgenae at the time of the testing

Comment:

James Freed

1257TQC00

11/19/2001

Monsanto Quality Shipping Certificate

Order Number: NZ12584

Description: 311H6 / 6207 (MALE)

Batch: F5-22N790T

Quality Test	Test Value (%)	Test Date	Re-Test or Data Due Date	Lower Quality Level (LQL)*
Warm Germination (AOSA)	97	Sep-01		90% Female, 80% Male
Monsanto Cold Germination	93	Sep-01		80% Female, 70% Male
Outcrosses (isozyme)	0	Sep-01		3.0%
Tails and Others (growout)	NA	NA		0.5%
RR Roundup Susceptible (field test)	NA	NA		0.5%
Bt Susceptibles (ELISA)	NA	NA		1.0%
Moisture	11.2	Sep-01		9%-13%
%non-white (white corn)	NA	NA		0.1%
Inert	1.8	Sep-01		0.4%
Mechanical Damage	0	Sep-01		3.0%
Disease/Discolored	0	Sep-01		1.0%
Combination (3 above)	1.8	Sep-01		3.0%
PCR seed purity	zero detects	1999		<0.25% @ 95% Level of Confidence

Signature **Keith Oelmann**

date: **August 14, 2002**

* LQL is the quality threshold as described by Remund et al in

Remund, K.M., Dixon, D.A., Wright D.L., Holden L.R. "Statistical considerations in seed purity testing for transgenic traits"

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Comment:

James Freed

1257TQC00

11/19/2001



Mainfreight Limited
PO Box 14-038
Panmure
Auckland
GST No: 19-623-556

AX INVOICE/STATEMENT

"If you want the rainbow, you have to put up with the rain." - Dolly Parton

SEED SOLUTIONS
PO BOX 534
PUKEKOHE
New Zealand

Customer Code
Week Ending
Week Number
Page Number

SEEDSO
04 August 2002
200231
1

Opening Balance

0.00

Date	Document Reference	Our Ref	Branch Origin/Dest	Other Details	Sender [S] Receiver [R]	Your Ref	Items	Cubic m3	Weight Kgs	Charge Excl GST	Charge Incl GST
08 216840013	0160830	200231	PUK GIS 01	CORSAN GRAINS	[R] ANGELA		1	40.00	21738	1,750.00	1,968.75
08 200231				FUEL RECOVERY 0.4000% FROM 01/01						7.00	7.88

PAID \$1976.63

DATE 20/8/02

CHK 500251

this week's GST details

Charge (excl GST) 1,757.00
GST 219.63
Charge (incl GST) 1,976.63

Amounts Due

Closing Balance

1,976.63

Overdue

0.00

Total Due 1,976.63

Payable within 7 days - Please phone your local Mainfreight Branch regarding any queries on this account

REMITTANCE
ADVICE

Week	Balance	Paid
200231	1,976.63	
Total Due	1,976.63	

Mainfreight Limited
PO Box 14-038
Panmure
Auckland

SPENSO



Pacific Seeds Pty Ltd

A.B.N. 87 010 933 061
268 Arzac Avenue, P.O. Box 337,
Inverloch, Vic. 3950, Australia.
Phone: (07) 4690 2666
Fax: (07) 4630 1063

As the Maize Breeder for Pacific Seeds, I confirm that the following 'Advanta International Maize Codes' have the associated production codes listed below in the 'Pacific Seeds Internal Nomenclature System':

Advanta International Maize Codes	Pacific Seeds Internal Nomenclature System
UX26	821093
UX77	821094
IK88	821082

Regards,

A handwritten signature in dark ink, appearing to read 'P Newell', is written over a horizontal line.

Paul Newell
Maize Breeder
Pacific Seeds



Annexure E

Photographs

Pukekohe Field Conditions 20/8/02



1. Stubble on field at Crop & Food Facility



2. Volunteer Maize



3. Grazed paddock at Logan Rd, Pukekohe



4. Grazed paddock at Waiuku

Pukekohe Field Conditions 20/8/02



5. Shelter belt barrier at Crop & Food Facility



6. Stubble on field at Crop & Food Facility



7. Shelter belt barrier



8. Shelter belt barrier

Gisborne Field Conditions 27/8/02



1. Site where maize grown at Ormond Valley



2. Ormond Valley looking towards southern sweetcom plot



3. Overview of Ormond Valley Site



4. Site where maize grown at Harrington Road

Gisborne Field Conditions 27/8/02



5. Close up of Harrington Road



6. Site where maize grown at Tangihanga Station Road



7. Other maize paddock more than 300 metres to northwest



8. Corson's grain store