CFPA Canning Fruit Producers' Assoc. Submit to: Wiehahn Victor Tel: +27 (0)21 872 1501 inmaak@mweb.co.za	**SAAPPA / SASPA / SAT** DFPT Research Submit to: Louise Liebenberg Tel: +27 (0)21 882 8470/1 louise@dfptresearch.co.za	**DFTS** Dried Fruit Technical Services Submit to: Dappie Smit Tel: +27 (0)21 870 2900 dappies@dtd.co.za	**Winetech** Submit to: Jan Booysen Tel: +27 (0)21 807 3324 booysenj@winetech.co.za

Indicate (X) client(s) to whom this progress report is submitted.
Replace any of these with other relevant clients if required.

PROGRESS REPORT
FOR 2010

Programme & Project Leader Information

	Programme leader	Project leader
Title, initials, surname	Dr. Nigel Cook	Helen Punt
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Project Information

Project number	

Project title	Short stems resulting in fruit-drop on Pink Lady Apples

Industry programme	**CFPA**	
	Deciduous	X
	DFTS	
	Winetech	
	Other	
Fruit kind(s)		Pink Lady Apples
Start date (dd/mm/yyyy)		10 October 2009
End date (dd/mm/yyyy)		August 2011

(Note: adjust footer – insert project no, researcher and research institution)

SUMMARY OF PROGRESS REPORT FOR YEAR 2010

PROGRAMME & PROJECT LEADER INFORMATION

	Programme leader	Project leader
Title, initials, surname	Dr. Nigel Cook	Helen Punt
Institution	DFPT research	Private
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PROJECT INFORMATION

Project number	
Project title	Short stems resulting in fruit-drop on Pink Lady Apples
Fruit kind(s)	Pink Lady Apples

Start date (dd/mm/yyyy)	10 October 2009	**End date** (dd/mm/yyyy)	August 2011

(Give a summary of the project to date in no more than 250 words).

At the start of this project it was assumed that Pink Lady apples tend to dislodge each other due to a short stem-length and more than two fruit per cluster are more than likely to push each other off, compared to one fruit per cluster. The latter is still true, but during the first year it became clear that stem-length had very little to do with the amount of fruit drop.

In year 1 the average stem-length was the exact opposite than what was expected. The fruit with the longest stem-length had some of the worst fruit drop and the fruit that had shorter stem-length had the least fruit drop.
In year 2 it was found that both the fruit with the longest & shortest stems had an average fruit drop of 29% to 39% respectively. This brings me to the conclusion that the fruit drop in Pink Lady Apples has very little to do with stem-length. But what causes Pink Lady Apples to drop most of its apples a month or less before harvest?
A possible answer lies in the rootstock. The type of rootstock has a significant effect on fruit drop as seen in Table 1 below. M7 rootstock tends to have the least fruit drop, even though stem-length varies between 5.5mm and 11mm.

TABLE 1:

The % fruitdrop in year1 & 2 compaired between different rootstocks & farms

	BFT (M793)	BFT (M7)	SPZ (M106)	SPZ (M7)	JBJ (M106)	JBJ (M7)
Average stemlength year 1 (mm)	7.5	5.5	10.5	8.5	8	8.5
Average stemlength year 2 (mm)	9	9	8.5	9	11	11
Final Fruitsize (mm) year 1	63	61	63	66	64	57
Final Fruitsize (mm) year 2	62	64	65	61	65	62

Total % Fruitdrop year 1	33%	14%	25%	17%	38%	19%
Total % Fruitdrop year 2	31%	49%	29%	11%	39%	29%

In year 2 it was decided to try and increase stem-length by using thinning agents containing Gibberillic acid (GA). However, only Maxcell showed any significant decrease in the amount of fruit drop, even though it had the shortest stem-length of all treatments.
The conclusion is that Maxcell ensured that the fruit became a strong 'sink', due to the hormonal effect of 6-Bensiel-Adenien while having very little effect on stem-length (see Table 2).

In all 4 treatments the amount of fruit per cluster had a significant effect on fruit drop. Fruit from single fruit clusters showed the lowest fruit drop compared to two or more fruit per cluster.

TABLE 2:

	Planofix	**Control**	**Promalin**	**Maxcell**
Average stemlength Year 2 (mm)	11	11	10	9.5
Total % Fruitdrop	38%	39%	44%	26%
Fruitdrop at diffirent amounts/cluster as % of original amount of fruit on cluster				
1fruit/cluster	20%	25%	60%	7%
2 fruit/cluster	36%	35%	42%	17%
>2 fruit/cluster	47%	43%	44%	41%
Fruitdrop of kingflowers as % of original total amount of kingflowers				
	50.0	35.0	44.0	7.0

PROGRESS REPORT

1. Problem identification and objectives

Shortly state the problem being addressed and the ultimate aim of the project.
State the objectives for the current year and for the following year.

The ultimate aim of the project is to determine the possible reason for the high amount of fruit drop before harvest of Pink Lady apples and to decrease the percentage of apples dropping off the tree anytime from a month before harvest, until harvest. Initially the suggestion was that it might be due to a short stem-length, however both year 1 and 2 of this trial state the contrary.

The objective for the following year is to find an alternative to the thinning agents that have been sprayed in year 2. A possibility is an Ethylene inhibiter like Retain and to compare these results with different spray intervals of Maxcell & Planofix.

2. Amended workplan (materials & methods)

Give the proposed workplan for continuation **if changes are proposed to the original workplan**.

The workplan is to spray Maxcell at 8-15mm fruit diameter; at a month before harvest (at about a fruit diameter of 45-50mm) and then combining the two sprays. The same will be done with Retain and Planofix.

The trial will be a randomized complete block design with six replicates. Three tree plots will be sprayed with guard trees between the plots. Data will be collected from the centre tree.

The trial of year 1 will be repeated to ensure that M7 is indeed better when considering the % fruit drop and to eliminate any suspicions that stem-length has anything to do with the amount of fruit dropping from the tree.

3. Performance chart, results and discussion

Referring to the objectives, state results obtained to date and list any current benefits to the industry. Include a short discussion if applicable to your results. Please limit this discussion to essential information.

Milestone	Achievement
1. Quantify the amount of fruit drop	In Year 1: 14% - 38% fruit drop occurred before harvest & In year 2 it was 11% - 49% fruit drop
2. To determine the correlation between rootstocks, fruit drop & stem length	In Year 1 the least fruit drop occurred on rootstock M7, while stem-length was of the shortest in the trial. In Year 2 the least fruit drop occurred again on rootstock M7, while stem-length was between average length & the longest. Therefore no correlation was found between fruit drop & stem length.

3. To determine the influence of thinning chemicals on fruit drop & stem-length	Planofix, Maxcell & Promalin was sprayed and only Maxcell had a positive influence on the amount of fruit dropping from the tree, however stem-length was not significantly affected.
4. The effect of the amount of fruit per cluster on the % of fruit drop.	Single fruit per cluster and two fruit per cluster had a better success rate in all treatments than those with more than 2 fruit/cluster. Maxcell had the least fruit drop of all the treatments.
5. The effect of an Ethylene inhibiter on the % fruit drop	To be achieved in year 3
6. To confirm if Maxcell has indeed better results on fruit drop than any other GA sprays	To be achieved in year 3

4. Accumulated outputs

Indicate the year actioned.

Technology developed

Since this problem is not only restricted to the Highveld region, it will give a possible reason for the extensive fruit drop on Pink Lady Apples, nationwide.

Human resources development/training

Various previously disadvantage individuals from both farms will help manage this project, from the lay-out till harvest of fruit.

Patents

Publications (popular, press releases, semi-scientific, scientific)

Popular

Presentations/papers delivered

5. Budget for the following year: 2011

	CFPA	Deciduous	DFTS	Winetech	THRIP	Other	TOTAL
FUNDING REQUIRED FOR FOLLOWING YEAR: TOTAL		**32 000**					

Overheads (only if part of project cost)							**4 000**
Personnel costs							**17 600**
Running costs							
Local travel and accommodation							**10 200**
Local conferences (only specify separately for THIRP purposes)							
Equipment (capital items*)							**200**
Other							

* Industries will only fund capital items under exceptional circumstances

6. Total estimated budget for project (insert actual cost when available)

	Year	CFPA	Deciduous	DFTS	Winetech	THRIP	Other	TOTAL
Total cost in real terms for year 1	2009		46 000					**46 000**
Total cost in real terms for year 2	2010		29 000					**29 000**
Total cost in real terms for year 3	2011		32 000					**32 000**
Total cost in real terms for year 4								
Total cost in real terms for year 5								
TOTAL								**107 000**

EVALUATION BY INDUSTRY

This section is for office use only

Project number:	
Project title:	
Name of Subcommittee*:	

Comments on project:

Committee's recommendation:

Accepted.

Accepted provisionally if the subcommittee's comments are also addressed.
Resubmit this progress report by _____

Unacceptable. Must resubmit progress report.

Chairperson: _____ **Date:** _____

*SUBCOMMITTEES:

Winetech

Viticulture: Organic Cultivation and Production; Cultivation; Soil Science; Plant Biotechnology; Vine Virus Committee; Plant Protection; Plant Improvement; Resource Poor Producers

Oenology: Production Technology; Bottling, Packaging & Distribution; By and Waste Production Handling; Brandy and Distilling; Microbiology

Deciduous Fruit

Producer Research Advisory Committees (RAC's): Pome fruit, Stone fruit, Table grapes

Peer Work Groups (PWG's): Biotechnology, Breeding & Evaluation (Pome Fruit), Breeding & Evaluation (Stone Fruit), Entomology, Horticulture, Pathology, Post Harvest, Soil Science, Table Grape Production