

## RESEARCH FOR THE YEAR 1984/85

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From humble beginnings in 1977 our research is now drawing international attention. This is the result of circumstances and good planning. The reason for our prominence in the avocado world today is that Phytophthora root rot had to be controlled to secure a viable avocado industry. It was a matter of survival. Our chemical control methods, especially the work by Dr Darvas, not only gave the industry a new lease of life, but caught the international lime-light. Secondly, due to the vast distances that our fruit has to travel for marketing in Europe, we had to solve our fruit physiological problems with the Fuerte cultivar. In this regard several research workers made noteworthy contributions.

Regarding the post-harvest physiological problems the most significant hypothesis at this stage is that there is similarity in the nature and cause of bitter pit in apples and pulp spot and grey pulp in avocado fruit. Both problems are associated with calcium deficiencies. It would be to mutual advantage if the avocado and the apple researchers can get together to compare results and plan together.

There are many separate projects which are being undertaken at various places in the Republic and it is always fair to ask whether we have our priorities right and whether the co-operation between the various workers is satisfactory. As co-ordinator of SAAGA's research I experience an excellent spirit of co-operation and we try hard to concentrate on the most important problems. It will never be ideal. However, at each annual symposium there is evidence of remarkable progress.

Is the research effort between the CSFRI and SAAGA, measured in terms of results, not unique? I cannot recall another industry, big or small, that is so actively solving those problems where it matters most. We are grateful to Dr G S Bredell and Dr A J Heyns for their sterling support to the avocado industry.

It is appropriate that we now announce that an International Avocado Congress will take place in Pretoria in May 1987. We hope to have the biggest ever concentration of "avocado brains" at this conference. Every important aspect of avocado growing will be discussed. The pre and post-conference tours should be well worth attending.

When considering the list of projects which are supported in SAAGA, the projects undertaken by the CSFRI at Nelspruit have to be taken into account first.

**TABLE 1; Research projects undertaken by the CSFRI  
(Submitted by A van Oostrum)**

TITLE	PERSONS RESPONSIBLE
Investigations into various rootstock combinations	J P Bower
Physiological aspects of disease resistance on avocados	L J van Lelyveld
Investigations into avocado fruit physiology with particular reference to water relations	J P Bower
Biochemical investigations into the enzymatic production of ethylene in avocado.	P le Roux
Macro and micro element requirements of avocados	T J Koen
Resistance of avocado cultivars to root rot	J N Moll
Chemical control of avocado root rot	J A Herbert
Identification and control of avocado virus diseases	S P van Vuuren
Evaluation of avocado cultivars in Natal	A J Joubert
Improved shelf life of avocados	D H Swarts
Controlled and modified atmosphere storage of avocados	D H Swarts in conjunction with Dr GJ Eksteen (FFRI)

Table 2: SAAGA-sponsored research projects for 1984-85.

Project	Description	Priority	Persons Responsible	Comments
W 1	Chemical control of <i>Cercospora</i> spot and certain post-harvest diseases.	A	J M Darvas	There is still an urgent need for more effective pre-harvest disease control.
W 2	Control of post-harvest avocado diseases	A	J M Darvas	Post-harvest decay remains a major problem. Pre-harvest control is only partially effective. Post-harvest treatments have shown promise lately.
W 3	Chemical control of root rot	A	J M Darvas	New chemicals and better application methods are constantly investigated.
W 4	Ecological studies of "other" root pathogens	B		The effect of control measures applied for <i>P. cinnamomi</i> , may adversely effect other pathogens.
W 5	Evaluation of Prochloraz as a post-harvest treatment.	B	W le Roux	Excellent results obtained when Prochloraz was applied as an ultra low volume spray.
W 6	The effect of calcium on internal quality	A	S J Köhne	Follow-up of promising results of 1983-season.
W 7	Growth manipulation of avocado	B	S J Köhne	Various techniques to control tree growth and yield is being investigated.
W 8	Factors involved in yield structure of avocados	B	S J Köhne	
W 9	Pre-ripening of avocados	B	S J Köhne	Post-harvest application of ethylene for quick ripening to be continued.
W 10	Crop predictions	B	S J Köhne	Parameters to predict avocado crops will be determined in field trials.
W 11	Avocado fruit physiological studies	A	M J Slabbert	Ca uptake and effects on fruit quality to be continued.
W 12	Effects of CO <sub>2</sub> and temperature regimes on fruit quality.	A	M J Slabbert	Suffocation of fruit <i>en route</i> and temperature control to be investigated.
P 1	Evaluation of fungicides against avocado fruit disease	A	J M Kotzé & F Denner	Fungicides for the control of fruit diseases will be screened and evaluated.
P 2	Techniques to determine P-compounds in avocado tissues.	A	J J Bezuidenhout	Chemical techniques are being developed to determine different P. compounds.
P 3	Sun Blotch monitoring	A	A D Botha & L Korsten	A technique will be examined to monitor for the presence of sunblotch in our mother trees and rootstocks.
N 1	Monitoring for avocado viruses	A	J V da Graca	Dr da Graca follows up his previous findings and tries to determine viruses in seed sources and rootstocks.
N 2	(a) Radio-immuno assays of plant hormones (b) Calcium absorption and distribution in avocado tree and fruit	D	B N Wolstenhome	(a) Is of academic interest but assumes practical importance in the understanding of physiological problems. (b) Is of considerable importance in pulp spot.
N 3	Resistance of avocado roots to <i>Phytophthora cinnamomi</i>	B	F H J Rijkenberg	This work should help to explain how resistance works.
R 1	The role of calcium in fruit quality	A	A H P Engelbrecht	With the help of post graduate students the influence of calcium on internal quality is investigated.
U N	Liming of acid soils	A	P Fouché	Acid soils create a problem in many areas. A programme is being worked out to handle the situation.
SA 1	Evaluation of boxes and cooling of avocados		GG Burelli	For sea export a cooling regime has to be found to secure the best fruit quality.
H 1	Evaluation of application techniques for fruit spraying		A W G Rowell	Mist blowers will be evaluated against conventional sprayers for the control of fruit diseases.