THE POTENTIAL OF PEANUTS AS A CROP IN NEW ZEALAND

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ABSTRACT

New Zealand currently imports peanuts and peanut products to a value of $5 million per annum. Agronomic trials in the north of the country have indicated that good yields of this crop can be obtained. Recommendations are given for the cultivation of peanuts and an estimated gross margin is given.

INTRODUCTION

New Zealand imports approximately 4 - 6,000 t of peanuts and peanut products worth approximately $5 million out of total annual imports of vegetable oils of approximately $38 million (Table 1).

Over the last ten years many groups and individuals have expressed interest in attempting to grow peanuts in different parts of New Zealand.

Peanuts have been successfully grown on a small scale in New Zealand for many years. The first peanut research trials were carried out over twenty years ago, indicating that only the more northern areas of New Zealand would be suitable for commercial production.

Further peanut trials started in 1978 when 73 lines were evaluated at Pukekohe. In the following two seasons the better performing lines were evaluated at Pukekohe, Helensville, Dargaville and TeHapua. Yields were variable but in the better trials mean trial yields exceeded 2 t/ha with the better lines yielding up to 3 t/ha (Anderson & Piggot, 1981) The better lines were all Spanish or Valencia types peanuts, the later maturing Virginia types being low yielding in all trials in which they were grown.

CROP PRODUCTION

The most recent cultivar evaluation at different sites was carried out in 1985/6 and results are shown in Table 2.

At Gisborne the site was very dry and peanuts were sown in wide 75 cm rows. It is believed that the yield could have been higher if row spacing had been 50 cm as in the other trials. Over all trials the cultivar New Mexico has given the most consistent performance and since 1986 has been the only line distributed to people wanting to grown peanuts in New Zealand.

Many successful small scale blocks of up to 0.2 ha of peanuts have been grown in different areas of New Zealand including Northland, Auckland, Bay of Plenty, Poverty Bay, Hawkes Bay and Marlborough. The best recorded yields of shelled peanuts have exceeded 4 t/ha at Helensville and Kerikeri but there have also been several plantings with very low yields. Where crops have been unsuccessful the most common reason for failure has been poor weed control. However effective herbicides are available for peanuts and weed control need not be a factor limiting the viability of the crop.

Diseases have not been a major problem except where seed was not treated with a fungicide prior to sowing or in very weedy crops where *Sclerotinia* has sometimes been a problem.

The only major insect problem encountered so far has been onion fly maggot reducing plant emergence on land straight out of pasture.

RECOMMENDATIONS FOR GROWING PEANUTS

Some recommendations for growing peanuts have been drawn up as a result of experience in running these trials and these are listed below.

Seedbed preparation: Normal seedbed preparation as for cereal or pasture crops but care should be taken to ensure that there is no history of serious weeds such as *Amaranthus* sp (red shank), *Chenopodium album* (fat hen), or *Solanum nigrum* (black nightshade).

Sowing time: Recommend that sowing is delayed until soil temperatures have risen above 15 °C. In areas where peanuts are likely to be grown this is likely to be between mid-October and early November.

Table 1: New Zealand imports of peanuts and peanut products 1987-88.

	Quantity (kg)	$ Value
Roasted peanuts	174,200[1]	293,800
Uncooked peanuts	3,533,300[2]	4,556,200[3]
Peanut Butter	141,400	487,300
Peanut Oil	334,600	471,000
Total	4,183 t	$5,798,300

[1] 80% of cooked peanuts are imported from Australia. [2] Major suppliers of uncooked nuts include USA 40% (at an average landed price of $NZ1,160/t), China 26% and Australia 23%. [3] Average landed price of uncooked peanuts 1987-88, $NZ1,289/t.

Table 2: 1985-86 peanut trial results

	Shelled Peanut Yield t/ha.			
Cultivar	Helensville	Pukekohe	Gisborne	Cultivar mean
OAC 6-78-4	2.41	2.91	1.69	2.34
New Mexico	2.42	2.86	1.65	2.31
OAC 37-24	2.58	2.54	1.66	2.26
Valencia Senegal	2.50	2.57	1.64	2.24
Garroy	2.77	2.33	1.40	2.17
CPI 46724	2.48	2.40	1.24	2.04
OAC 17-78-2	2.29	1.85	1.79	1.98
CPI 42442	2.67	1.78	1.45	1.97
OAC 12-78-12	2.54	2.54	1.84	1.49
OAC 29-78-7	2.23	2.14	1.39	1.92
OAC 21-78-7	1.95	1.85	1.72	1.84
Site Mean Yield	2.44	2.28	1.56	
CV	Site	10.9	Cultivar	17.1
LSD (P < 0.05)		0.36		0.29
Overall Mean Yield				2.09 t/ha

Fertilizer: A major requirement is a soil pH of 5.8 and high in available calcium. Otherwise fertilizer requirements are moderate. Peanuts are good nodulators so no nitrogen is required if inoculated.

Insect control: Onion fly and maggot as well as pasture pests such as grass grub and soldier fly have been a problem however all can be controlled by Diazinon.

Diseases: There are no major diseases requiring regular fungicide treatment.

Weed control: A Lasso/Linuron pre-emergence spray is usually adequate for weed control, however if some weeds, especially grasses, persist a second herbicide may be necessary.

Table 3: Estimated gross margin for growing peanuts.

		hr/ha	$/ha	Sub-total	Total
Gross revenue for a crop yield of 2.4 t/ha at a price of $650/t					$1,560
Variable costs					
Cultivation					
Chip hoe		0.6			
Plough		1.4			
Hoe		0.6			
Harrow, roll		0.3			
Drill		0.8			
Total hours		3.7	$10,00	$37	
Seed	50	$1,100/t		$55	
Fertilizer					
Pottasic Super (kg/ha)		100	$390.00/t	$39	
Herbicide					
Treflan (kg/ha)	2		$9.45/kg	$19	
Post emergence	1		$40.00/kg	$40	
Application		1.6	$8.39	$13	
Insceticide					
Diazinon (kg/ha)	0.25	$40.00/kg	$10		
Application		0.8	$8.39	$7	
Harvesting					
Lifting and heading	12.00	$17.79	$213		
Drying			$40.00/t	$96	
Cartage	2		$20.00/t	$40	
Total Costs				$569	
Total revenue					$991

The gross margin for a 2.4 t/ha crop of peanuts is shown in Table 3, and a sensitivity analysis in Table 4.

THE FUTURE

The major factor limiting the future of peanuts in New Zealand is currently harvesting equipment. A number of growers have grown peanuts successfully in small areas and then expanded in area beyond what they could harvest by hand in the limited time available. They lost a considerable proportion of their production, as well as their enthusiasm for growing the crop. Commercial scale shellers will also be needed before large areas are grown. DSIR Crop Research has a small sheller which has been made available to several growers.

Commercial driers may also need modification to handle peanuts as peanuts cannot be augered. In the current season (1989-90) the largest individual crop being grown in New Zealand was 1 ha in the Bay of Plenty crops exceeding 0.2 ha were also grown in Northland and Hawkes Bay. Development of a locally built harvester is also being undertaken. If this is completed satisfactorily the development of peanuts as a commercial crop may be possible.

In Southern Ontario small groups of growers share machinery in a cooperative and a similar organisation could perhaps work in New Zealand. In Ontario trials on peanuts commenced around 1970, and growers started commercial production around 1980. Production fluctuated around low areas for several years but in 1988 the area of peanuts rose to 350 ha and looks set to expand into a significant crop for the region.

New Zealand has the potential to grow the majority of the peanuts consumed here. There are a number of areas with a sufficiently warm season and with suitable friable and free draining soils that can successfully grow

Table 4: Gross margin sensitivity analysis for yields from 1.5 to 3.5 t/ha and prices from $600 to $1,000/t.

Price	Yield (t/ha)				
	3.5	3.0	2.5	2.0	1.5
$	$	$	$	$	$
600	1,531	1,231	931	631	331
644	1,685	1,363	1,041	719	397
689	1,842	1,498	1,153	809	464
733	1,996	1,630	1,263	897	530
777	2,150	1,762	1,373	985	596
822	2,308	1,897	1,486	1,075	664
866	2,462	2,029	1,596	1,163	730
911	2,619	2,164	1,708	1,253	797
956	2,777	2,299	1,821	1,343	865
1,000	2,931	2,431	1,931	1,431	931

Spanish and Valencia type peanuts. There is interest from growers and provided investment is made in harvesters, shellers, and driers there is a good chance of this potential being realized. Commercial shellers would be easy to obtain from Australia.

New Zealand growers would be in a better position than peanut growers in other countries to grow the crop organically. Pests and diseases which are potentially devastating in other countries, are either not present here or are unlikely to be problems. For example fungal problems such as *Cercospora* which require regular spraying in Australia is not a problem as temperatures are below epidemic threshold levels.

CONCLUSION

There are no technical difficulties to growing peanuts in New Zealand, in fact there appear to be many advantages.

Success or failure will depend upon returns to growers and competing opportunities for growers.

REFERENCE

Anderson, J.A. & Piggot, G.J. 1981. Peanuts: A possible crop for warm northern areas of New Zealand. *Proceedings of the Agronomy Society of New Zealand 11*, 73-75.