11-1958

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VEGETABLE GROWING AT CARNARVON
A Summary of Vegetable Trials at the Gascoyne Research Station 1957

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The Gascoyne district is no longer entirely reliant on bananas for its income. "Out of season" vegetable growing has obviously come to stay, but to-date only a few varieties of vegetables have been grown commercially, the principal ones being runner beans, followed by tomatoes, cucumbers, rock melons, pumpkins and capsicums in that order. To reduce the possibility of a glut of these lines, the Department of Agriculture at Carnarvon has conducted a series of trials on many other vegetables which could have commercial possibilities if grown out of season in the district.

We consider that the most important of these would be onions, and despite several setbacks, we are confident that the Carnarvon district will be able to supply fresh brown and white onions to the Perth market as from August each year.

A set pattern is adopted for each particular vegetable type investigated. Plantings were made at regular intervals for the purpose of determining the best marketing period for each. Regular spraying, according to Departmental recommendations, was carried out to combat diseases and pests.

The following is a description of vegetable trials carried out at the Gascoyne Research Station in the 1957 season, together with comments on commercial possibilities and observations from private plantations.

ONIONS

Seasonal shortages of onions are a regular feature of the Perth vegetable markets. Whites are absent from the market from May until the end of August, when the early flats reappear, and browns are usually imported from July to early October.

In the Perth area, onions are planted in March-September, and harvested in November-February. They are then stored and sold over a period of several months. By the end of June the percentage of losses from storage rots becomes excessive; this necessitates continual sorting and eventually all remaining onions must be cleared.

The onion is a very hardy plant, but at the same time is sensitive to some environmental conditions such as temperature and day length.
When the standard varieties used in the Perth area were tried at Carnarvon during 1956 and 1957, few showed any promise, and most stayed in the ground for nearly 12 months without forming bulbs. This was apparently due to the difference in day length in the two areas, the days being somewhat shorter at Carnarvon as onions are maturing in the winter period.

Some onions that showed promise, were obtained from Fitzroy Crossing, in the Kimberleys. This was a very mixed lot of seed, showing many colour variations, from white to brown, and the shape was also variable, the majority being flattened globes. However this "variety" had been selected for earliness, and was the only onion to show promise from those tried in 1956-57.

Also tried in the district by some of the local growers, were some of Yates seed—Selection 105 (Lockyer Brown). This seed showed distinct promise, being of good globe shape and very early maturity. Some variation in colour was evident.

Seed selection is being carried out with the most promising varieties at the Research Station, but this is a long-term project as the onion can be considered a biennial—two years from seed until more seed is produced.

Together with the search for the right seed to suit the district, work is also going forward to study the correct cultural practices for onions in the Carnarvon district.

Three main problems were encountered in the onion crops grown in Carnarvon during the 1957 season—

**Advanced Maturity.**—The Yates seed “Lockyer Brown” (Selection 105) where sown in seed beds, produced a very high percentage (50 per cent. or greater) of mature bulbs an inch or less in diameter, within 6 to 8 weeks of the seed being sown. With seed costing £7 to £8 per lb. this defect was very costly to the growers. This problem is not encountered in Queensland, and locally-produced seed may be free from this trait.

“**Bolters**”—the production of seed heads in the onion crop, rendering the bulbs unmarketable.

Last year “Lockyer Brown” and “Fitzroy Crossing” seed, where drilled in early February and “thinned” at a later date, produced good sized onions with a complete absence of bolters. Later plantings were all transplanted and produced up to 90 per cent. bolters. The extreme cold experienced last year could have been responsible for this phenomenon.

One particular instance was recorded where onions planted on either side of a furrow, running east and west, produced four times as many bolters on the northern bank as occurred on the southern bank, which receives less sunlight.

Temperature appeared to be the main reason. Where comparatively warm weather was experienced, during the growing season, few “bolters” appeared.

Thus to avoid this trouble, plantings would have to be early, i.e., January or February, to avoid the cold normally expected during late June, July and August.

If day length is important, the onion would also require early planting to avoid maturing when the length of day was increasing.

“**Doubles**”—the division of a partly-matured bulb into two or more portions, each of which forms a bulb of irregular shape, and of no commercial value.

The tendency of an onion to double or split, is controlled by its suitability to the area in which it is being grown, and also by cultural practices.

All the onions suited to a longer day length, when grown at Carnarvon, exhibited a considerable number of splits. The more promising varieties for the district also split, where incorrect maturial practices were followed, i.e., heavy applications of nitrogenous fertilisers applied at bulbing.

The “Lockyer Brown” variety was notable with respect to splits, in that it was hard to tell a “split” at maturity; for the several portions each formed an almost perfect onion.

**Onion Trial Results.**

An irrigation trial last year at the Gascoyne Research Station, to study onion growing by flooding on the heavier Gascoyne soils, showed many interesting side-lights. Flooding was by three methods:—

(a) Onions planted in 6 ft. bays.

(b) Onions planted on the water line on both sides of a furrow.

(c) Onions planted on narrow ridges and watered from either side.
Yield.

(a) Produced the heaviest yield per acre, due to the higher plant density, but onions were small.
(b) Lighter yield per acre than (a), but with a better sized onion.
(c) Lighter yield than (a) and (b), with slightly smaller onions.

Observations.

(a) Spacing 6 in. x 3 in. with five rows per bay caused stunted growth in the centre rows. Packing of the soil, due to repeated floodings, caused distortion of shape of bulbs. Unless the bays were perfectly level (a practical impossibility over large areas), localised spots of retarded growth were present in any depressions.
(b) This method was easiest to prepare, weed, water, etc., but the bulbs tended to be too large and, again, there was some distortion in shape.
(c) Appeared to be the most suitable method, producing bulbs of excellent shape and all being very even. However, the yield per acre was the lowest for the three methods, and the land preparation requires the most work. However, this method would offer the best prospects for sowing in drills and thinning later.

The onion seed is small and requires a fine seed bed tilth to germinate. This condition is best obtained by method c, whereby water does not overflow and compact the soil.

Prices have varied somewhat during the period under trial, so it is difficult to assess the prospects for expanding Carnarvon production. There would certainly be scope however, for a few growers to specialise in the production of a White Globe onion for the June, July, and August period.

RHUBARB

This crop was planted from crowns obtained from Perth and came to maturity in 10 to 14 weeks from planting. It was grown on the usual Carnarvon furrow irrigation system, and produced well. Based on plot yields, and using furrows at 5 ft. centres, the production rate was 12 tons per acre of marketable stalks.

Samples were sent to the Metropolitan Markets for inspection and sale, and were described by the Market Trust Inspector as being equal to the best on the market at that time. The most lucrative marketing period was August and September, when up to 1s. 3d. per lb. was obtained. At an average price of approximately 9d. it would seem that the financial return from this crop would be considerable, but it must be remembered that commission, freight, bags, fertiliser and watering costs must all be deducted, so that the deciding factor which determines whether or not
the crop will be an economical prospect, is the price which the prospective grower must pay for planting materials.

Crowns obtained by the Department for the trial proved quite costly, approximately 1s. each. However, in the gardens in the metropolitan area, it is customary for growers to obtain crowns from their neighbours at no cost at all provided that they do the digging themselves. It is possible, therefore, that some growers could get cheaper material from friends or relatives in the metropolitan gardens. Unfortunately, it seems almost impossible to carry a rhubarb crop through the Carnarvon summer, since the crown rot disease invariably destroys all the plants.

In the metropolitan area, rhubarb is regarded as one of the cheapest crops to grow, and there is no doubt that an excellent sample can be produced in the Carnarvon district if crowns are planted in May-June. It is easily handled by comparison with beans, but considerable care is necessary in packing, to make sure that the bundles of stalks are tight before they are put into bags or boxes. Marketing after September would be a doubtful proposition because the stalks rapidly go limp in the heat, after being cut.

It is considered that the crop would be quite a lucrative prospect for a small number of our growers.

SWEET CORN

Many inquiries have been made by Carnarvon growers about the commercial aspects of sweet corn production for the out of season Perth market. Most planters know that the crop grows vigorously under our conditions. At the Gascoyne Research Station two good varieties of sweet corn were planted at intervals. Commercial-sized samples were sent to the Perth Market, when matured, where their quality was considered to be good. However, for the very best of the consignment no more than 4s. 6d. to 5s. per dozen cobs could be obtained.

When production per acre and production costs per acre were worked out to determine the economical possibilities of the crop, the result was somewhat disappointing.

Production rate of the Research Station crop, once again using our furrow system with two rows per furrow, the furrows 6 ft. apart, was 1,000 dozen approximately per acre. This would mean that a grower would only net between £160 and £190 per acre.

Obviously the crop could not be contemplated as a part of our regular vegetable programme. However, if the corn was grown as a cover crop in place of maize, and harvested before the plants were turned in, it might not be such a poor prospect.

SWEET POTATOES

The 1957 trial was planned on the basis of the encouraging results achieved in the 1956 crop. Unfortunately, the first plantings were delayed by two months, since planting materials of the commercial varieties being used were late coming from Queensland. In 1956 sweet potatoes planted from local runners in March, were ready for harvest in September. Since they were a poor type of tuber, planting material was ordered from Queensland for the next series.

The 1957 plantings, after being made considerably late in the year, then received further setbacks, the major one being the extreme cold experienced in July. During this month Carnarvon received seven nights of frosts, which was most unusual. Prolific leaf and runner growth was made by the plants but no tubers formed until January, 1958. From the marketing point of view, the best months for maturing fresh sweet potatoes are from September to January. The only other sweet potatoes available at that time are storage tubers from metropolitan gardens, which do not compare with the fresh article.

For the 1956 samples, up to £100 a ton was received, but it would seem that prospective growers should be most cautious in wasting too much money and effort on the crop, due to its very adverse reaction to extreme winter cold.

CELERY

It was hoped that this crop would be a good prospect, particularly for the local and northern “early summer” market. However, it seems that this district never produces a good quality sample, due to climatic conditions.
The celery is very slow to germinate and grow, and its weaknesses soon become obvious when the Carnarvon spring arrives, accompanied by hot easterly winds. Despite the fact that regular seasonal plantings were made, the stalks could not be matured properly before January. Due to extreme heat their quality was vastly inferior to anything obtained from the metropolitan gardens.

**POTATOES**

The main object of this trial was to determine the length of the period over which good tubers can be produced in Carnarvon conditions, and to be sure that adequate control of early blight and potato moth can be effected over this period.

It was found that planting times were determined by the climate. If planted before late July there is more possibility that the young plants emerging will be destroyed by frost, and plantings made later than early September will most likely yield very poorly, due to the rising temperatures. Potato plantings made during summer in Carnarvon, rarely produce any tubers at all.

From late July and early August plantings, yields of 12 to 1 by weight of good quality tubers, were harvested. From early September plantings, 4 to 1 ratio was obtained together with a very noticeable decrease in quality. With regard to early blight and potato moth, the former was completely controlled by Zineb sprays. The potato fly was completely controlled in the early plantings only. In our September plantings, 20 per cent. of the tubers were damaged, despite regular spraying.

It is obvious that only a very limited number of growers could contemplate planting this crop for local sales.

**GLADIOLI**

A number of inquiries were received regarding the possibility of air-freighting gladioli to Perth during the late winter, when they are moderately scarce in the metropolitan area. The trial was conducted at the Gascoyne Research Station once again, involving varieties and time of planting, and the economic aspects of production.

First, it must be pointed out that to buy sufficient corms to plant an acre of gladioli, the cost would be prohibitive. The first object of any commercial grower is to build up his corm numbers by planting out, each year, the increasing number of tiny cormlets from the previous year and harvesting the resulting yearling corms, which can be brought into full production the year after. This is the only way the crop can be grown economically. It entails careful storing of corms each year, with dusting, to prevent corm rots and preferable with reduced temperatures to prevent breakdown in the hot weather.

Some excellent spikes were produced in our trial and samples were air freighted to Perth on a number of occasions. The probable contract price which florists would be prepared to pay for the quality of the article produced, would be 4s. to 5s. per dozen. This means that the crop could never become very lucrative, but may later be regarded as a useful side-line for a small number of growers. The only suitable planting times under our conditions are April and May.
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