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THE BEHAVIOUR OF TOBACCO VARIETIES IN WESTERN AUSTRALIA

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WITH the advent of a number of new varieties into the district, several problems have arisen, and this article is being written in an endeavour to set down just what is known of the varieties being tested. In order to make definite recommendations regarding a certain variety of tobacco, it requires to be tested under a wide range of soil and climatic conditions. To cover as wide a range of weather conditions as possible, the variety needs to be grown for three years before any real recommendation is warranted. To cover a wide range of soil types, trials have been conducted in several areas over the past two years and results are being accumulated.

The need for high-yielding varieties of tobacco of good quality is evident. At the present time and in certain cases, it may be necessary to sacrifice a certain amount of weight per acre in order to gain quality. When a new variety is grown, not only the grower becomes involved, but also the manufacturer and consumer.

The main reason in this district for the introduction of new varieties is that in recent years, the consumer preference has been for cigarette tobaccos which require bright-coloured, thin-textured leaf. The older varieties were adapted to pipe and plug tobaccos which were rather drooping in habit, whereas an erect habit of growth is a feature of the majority of new varieties.

Although it is recognised that there is a definite need for blue mould resistant varieties, no quick results can be expected, but work is progressing along these lines overseas.

To obtain the maximum return from any new variety, growing practices may have to be altered. Such factors as time of planting, fertilising, spacing, topping, and methods of harvesting and curing may need readjusting. For these reasons it can be seen that once a new variety shows some promise, several further seasons of testing may be required before the best methods of handling of the variety are discovered. It has been found in Canada, for instance, that the new varieties require higher rates of phosphate and potash to produce maximum yields of good quality tobacco.

It has been found that several of the new varieties mature several weeks earlier than the older ones, and in this district, this is a definite advantage owing to the short growing period in some seasons.

Tabulated below is a list of varieties at present under test, with relative remarks as to colour, size of plant and leaves, thickness, texture, curing ability and suckering characteristics.

Cross Hickory.

A selection from Hickory Prior. Popular in the State for a number of years. Although bottom leaves are of good width, leaf from half way up the plants is long and narrow. Texture of leaf is good, but colour is a little dark. Suckers freely and is difficult to cure.

Virginia Gold.

Selection from a cross between Yellow Special and Cash. Imported from Canada into Victoria approximately five years ago. A wide leaf to the top of the plant, and grows with a yellowish cast throughout the season. This variety must be allowed to ripen well before harvest. Leaves towards the top of the plant tend to be harsh, and should be grown on good, moist soil. It is not recommended for growing on new land. The onset of cooler nights may be the cause of the leaf being harsh textured. In some areas, it is giving a high proportion of red coloured leaf, although colour generally is very bright. It is difficult to cure with other varieties and sponges readily when colouring pro-

cess is prolonged. Matures a week to ten days before cross hickory. Very few suckers.

401.

Selection of 400 x Cash. The variety has been grown in Australia for a number of years. It is said to be best suited for the heavier types of soil, but is very prone to wind damage. Bottom leaves are broad and long and top leaves have good width and texture. Leaf must be harvested ripe. Suckers fairly heavily. Apparently suitable on soils on which Virginia Gold goes hard, and on newly cleared country.

402.

A selection of a cross of 400 x Jamaica. Somewhat similar in type to 401 and gives similar quality leaf. Not so susceptible to wind damage as 401. Fairly low sucker count.

Hicks.

A farmer's selection. The variety has been grown in the area previously, but was not carried on. Has given good results in other parts of Australia under irrigation. Leaf is rather narrow in relation to other varieties except cross Hickory, but is of fine texture. Should be suitable on new land with good moisture where wind is prevalent. Easy to cure. At its best in a wet season or under irrigation.

Delcrest.

This variety was first released in Canada in 1948, and at present constitutes the majority of crop grown in the Ontario area in Canada. Good results have been also obtained in Southern Rhodesia. It is resistant to black root rot.

Delcrest was first tested in this district during the 1953-1954 season, and on appearance, it is very poor, having rather long narrow leaves. However, cured leaf was exceptionally bright, and the texture was good. Yields have been high. It appears that further detailed trials are required on this variety on varying soil types, since on relatively new land, some harsh quality leaf was produced. A medium amount of suckers produced.

Yellow Special.

This variety has been tested for several years, but no outstanding results have been achieved. Leaves are of medium width, and it suckers fairly profusely.

Silver Dollar.

Somewhat similar to Gold Dollar in growth characteristics. Has been tried for only one year, and results as yet are inconclusive. Curing is not so easy as other newer varieties.

Bottom Special.

The leaves are rather closely spaced, of medium width and fairly long. Top leaves are narrow and below average. Bottom leaves give a fair quality leaf.

Broadleaf.

An importation from New Zealand, and has had average success in trials over several years. Appears to require a better class soil with good moisture content.

Although full details of the variety plots are not yet available, the following tables are set out in order to give growers some indication of the behaviour of varieties before planting. In computing average prices and values per acre, prices received for similar leaf last year have been used. These values should be used on a relative basis only, and plots in various districts should not be compared. In considering the quality of leaf produced, it is pointed out that all these varieties were cured together in the same kiln, and in some instances, e.g., 401 and Silver Dollar, leaf was downgraded because of excessive sponging. If cured by themselves, it is possible that some leaf would be of higher quality.

Figures which go to make up percentage of green leaf includes weights of both green cast and immature leaf. The higher grades of green cast leaf brought values which were only a little below those of the ripe grades. This figure is given to indicate at what stage of ripeness leaf of each variety should be harvested. The figure for percentage of leaf discarded was derived by subtracting the amount of saleable leaf from the total quantity harvested, and reflects the amount of trashy, dark, hard and immature green leaf obtained.

The following are the numbers indicating the locations and treatment of the plots.

(1A)—South Manjimup: Not topped.

(1B)—South Manjimup: Topped.

(Property—A. Maras.)

(11A)—Northcliffe: Not topped.

(11B)—Northcliffe: Topped.

(Property—R. Bell.)

Table 1.

(1A).—SOUTH MANJIMUP—NOT TOPPED.

Variety.	Total Yield.	Yield of Saleable Leaf.	Discarded Leaf.	Green Leaf.	Boardy Leaf.	Average Price.	Value per Acre.
	lb./acre.	lb./acre.	%	%	%	pence/lb.	£
Bottom Special	1,079	833	22	7	....	88	305
Hicks	1,348	1,156	14	8	2	87	418
Yellow Special	892	819	9	7	....	80	273
Broadleaf	1,389	1,110	19	7	....	85	393
401	1,037	913	12	4	....	85	323
402	856	814	5	11	....	78	265
Delcrest	1,379	1,260	9	1	....	107	562
Virginia Gold	1,462	1,115	24	7	9	68	316
Cross Hickory	1,400	1,146	18	2	....	87	407
Silver Dollar	1,026	881	13	2	....	85	312
Average	1,187	1,005	....	....	....	....	357

(1B).—SOUTH MANJIMUP—TOPPED.

Bottom Special	1,032	975	5	13	4	91	370
Hicks	1,047	1,022	2	10	....	116	494
Yellow Special	1,289	1,058	14	15	....	107	472
Broadleaf	1,405	1,328	6	1	10	101	559
401	1,312	1,053	20	13	....	87	382
402	1,198	1,162	3	4	....	123	596
Delcrest	1,671	1,602	5	3	4	114	760
Virginia Gold	1,592	1,385	13	28	25	102	588
Cross Hickory	1,291	1,027	20	16	....	115	492
Silver Dollar	1,068	965	9	1	....	96	386
Average	1,290	1,158	....	....	....	....	510

Bottom Special.

Low value per acre in both plots—small percentage of harsh textured leaf in the topped plants.

Hicks.

Value increased only slightly by topping—yield decreased in the topped plot, but growth in the area was reduced owing to an excess of moisture. Average price of leaf increased considerably by topping.

Yellow Special.

Value nearly doubled by topping—no boardy leaf evident.

Broadleaf.

A large percentage of bottom leaf was discarded in the untopped plot, and no harsh leaf was produced. In the topped section, however, the percentage of leaf discarded was reduced, but 10% of boardy leaf resulted. The value of the leaf in both cases was relatively good.

401.

This variety was low in values in both cases. Topping of the plants increased the total value, but decreased it relative to other varieties. As mentioned previously, this variety does better on the heavier soil types. Leaf from the topped plot was very sponged, indicating that it was picked too ripe for curing with other varieties.

402.

When topped, the value of leaf harvested was more than doubled, and both yield and value were significantly increased. Leaf harvested from an untopped crop needs to be very ripe. The amount of cutters and high grade leaf increased significantly in the topped plot.

Delcrest.

The value of leaf harvested from both plots is outstanding being well above other varieties. Topping the plants gave a de-

cided increase in yield and did not lower the quality of the leaf, except for the production of 3% of boardy leaf.

Virginia Gold.

When plants were topped the value of the leaf increased considerably, even though high percentages of leaf were either green or boardy. There was a certain amount of boardy leaf even in the untopped plot. A higher proportion of leaf harvested in the topped plot went into the lug and higher leaf grades.

Cross Hickory.

The fact that tip leaf from Cross Hickory is hard to cure, especially with other varieties, is borne out in this trial. The majority of the leaf in both plots discarded consisted of green tips and top leaf. The variety responded to topping, but to a lesser degree than other varieties.

Silver Dollar.

Whilst there was a certain amount of poor sponged leaf in the untopped plot, the leaf discarded from the topped portion was green. The variety has no outstanding characteristics.

Discussion

As stated previously, no attempt is being made at this stage to make a definite recommendation on a particular variety. From the figures it will be seen that the most outstanding fact is that topping was beneficial to all varieties, increasing the average value per acre by £150. Some varieties responded more to topping than others. Delcrest gave significantly better leaf in both cases, but since it has been grown for only one season, further detailed tests will be required. The value of Virginia Gold is that yield is high and even though top leaves tend to be of a boardy nature, cutters and lower leaves are in high proportion and of excellent quality.

Table 2.

(11A).—NORTHCLIFFE—NOT TOPPED.

Variety.	Total Yield.	Yield of Saleable Leaf.	Discarded Leaf.	Green Leaf.	Boardy Leaf.	Average Price.	Value per Acre.
	lb./acre.	lb./acre.	%	%	%	pence/lb.	£
Bottom Special	866	731	15	18	1	88	268
Hicks	897	793	12	36	....	98	324
Yellow Special	1,011	907	10	25	2	117	446
Broadleaf	1,265	1,120	11	2	....	128	598
401	1,157	985	15	23	10	108	443
402	1,177	804	32	11	9	94	315
Delcrest	1,296	1,011	22	20	17	107	452
Virginia Gold	1,068	980	8	30	....	102	417
Cross Hickory	1,483	1,212	18	21	....	99	501
Silver Dollar	1,405	1,125	20	20	2	85	399
Average	1,162	967	....	....	....	....	416

(11B).—NORTHCLIFFE—TOPPED.

Bottom Special	1,182	933	21	1	5	96	374
Hicks	1,670	1,483	11	20	....	92	566
Yellow Special	1,514	970	37	25	2	106	416
Broadleaf	1,400	1,239	11	15	1	112	580
401	1,426	1,042	25	18	8	98	435
402	1,240	1,011	18	51	....	66	278
Delcrest	1,286	1,115	13	24	5	101	467
Virginia Gold	933	539	42	22	31	88	298
Cross Hickory	570	467	19	8	9	107	208
Silver Dollar	1,001	866	13	18	98	354
Average	1,222	966	398

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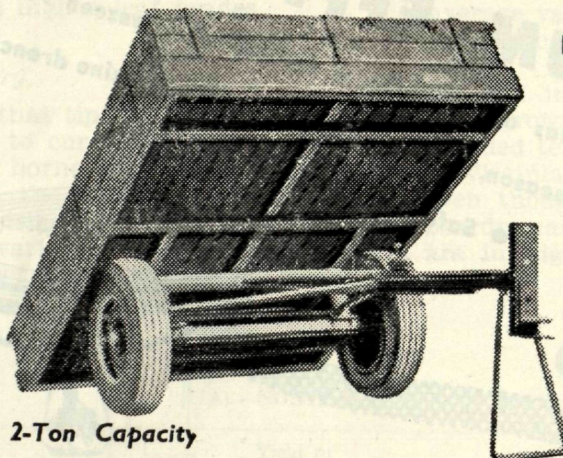
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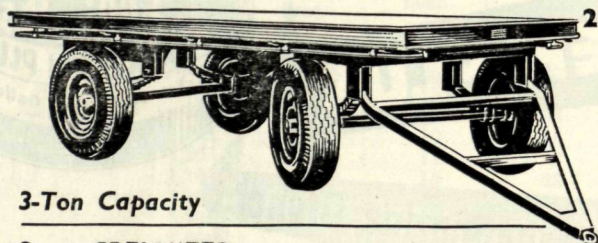


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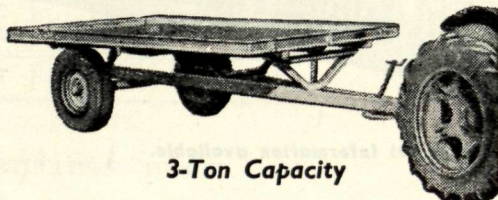
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Bottom Special.

Yield was low in the untopped portion due to an excess of moisture. Boardy tips were harvested from the topped plot.

Hicks.

Untopped plot in a wet patch and consequent low yield. There was a high proportion of cutters and high grade leaf in the topped area, and no coarse leaf in either plot. Requires to be harvested ripe.

Yellow Special.

Must be harvested very ripe, profuse suckers on this variety and not recommended for topping.

Broadleaf.

Good value per acre in both plots, but a higher value per pound in the untopped portion.

401.

Topping increased the yield but caused a decrease in the value.

402.

Top leaves of this variety require to be harvested very ripe, especially after topping. A proportion of red coloured leaf was produced.

Delcrest.

Top leaves need to be very ripe—a high percentage of coarse leaf in the untopped plot.

Virginia Gold.

Yield reduced in topped portion because of excess moisture. A high percentage of green and boardy leaf was produced in this plot. In the untopped portion, no boardy leaf was produced and a higher proportion of leaf was graded into the higher leaf grades.

Cross Hickory.

Yield low in topped area due to excessive moisture and top leaf was not harvested.

Silver Dollar.

Nothing outstanding in this variety.

Discussion

Generally, the figures have shown that topping has not had any beneficial effect except in the case of Hicks. During the

past few years, a high proportion of boardy leaf has been produced in the Northcliffe district, and it appears that any variety which tends to produce this type of leaf should not be grown, except on specially selected pieces of land.

GENERAL SUMMARY

Varieties grown at Northcliffe behaved entirely differently from those grown at Manjimup. For this reason, growers should not be guided primarily by results which have been achieved elsewhere with different varieties, but should go on experience in their own district, or even their own farm. With the variability of soils and moisture contents of soils in the lower south-west, it is advisable for a grower to test any new variety on his own farm, by growing several rows in various sections of the paddock, on moist and drier ground. In this way, it can be determined which variety is most suitable under his own particular soil conditions after a general recommendation has been made.



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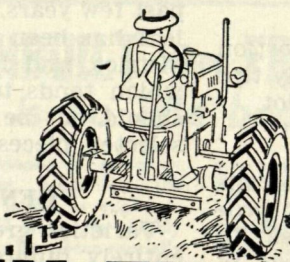
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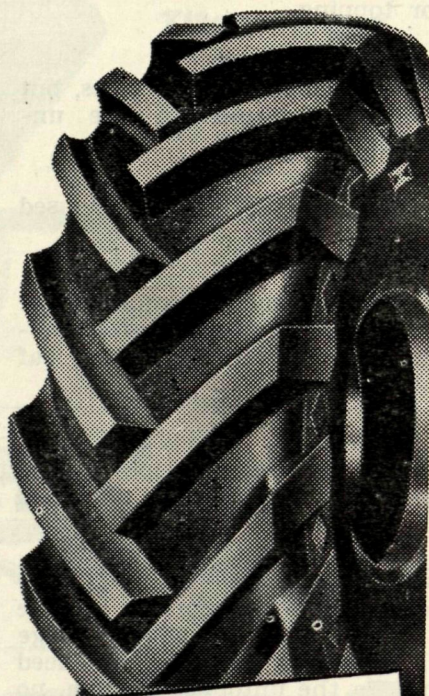
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