

Survey of Field Pea Production Practices in South Australia.

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Abstract

A review of pea yields in South Australia showed a general decline between 1983 and 1994 in the medium and high rainfall areas of the State. To examine whether changes in farm practice were associated with these trends a survey of farmers in the major pea growing areas of South Australia was conducted in 1999. Only 30% of farmers reported an increase in pea yields in the last decade compared to 98% reporting an increase in wheat yields over the same period. Farmers acknowledge that field peas have contributed to increased wheat yields but are searching for ways to improve pea yields. The disease Blackspot was identified as the major limitation to pea production. Compared to the mid 1980s, most farmers have delayed sowing and widened rotations in an attempt to minimise the effect of blackspot. Farmers have increased sowing rates and fertiliser use in the last decade.

KEY WORDS

Field peas, sowing time, blackspot, rotations, *Mycosphaerella pinodes*, *Phoma medicaginis* var. *pinodella*.

INTRODUCTION

Field peas are the major pulse crop in South Australia, but between 1983 and 1995 pea yields declined in many areas of South Australia (2). To try to understand the reasons for this decline we surveyed farmers about their current pea production practices and how farmers' practices have changed in the last decade. This allowed us to see what concerns farmers have in producing peas and if certain practices are related to poor performance of peas.

A survey of commercial pea crops in South Australia in 1995 found that blackspot (*Mycosphaerella pinodes*, *Phoma medicaginis* var. *pinodella*) and downy mildew (*Peronospora vicia*) were the worse diseases and that the levels of blackspot were less with delayed sowing and longer rotations (1). Since this work was done farmers have been advised to delay sowing and increase the time between successive pea crops. The survey also allowed us to see if farmers are adopting recent recommendations for production of peas.

Materials and Methods

A questionnaire about pea production practices, farmers' attitudes to peas and various aspects of pea production was developed. For most questions, farmers had to tick a box of the options offered, and the questionnaire took approximately 15 min to complete. Questions covered general farm description, pea production practices and how they have changed in the last decade, pea diseases, and farmer's perception of benefits and problems of peas. The questionnaire was handed out in autumn 1999 to farmers at Agriculture Bureau meetings held in the mid-north and upper southeast of South Australia. The farmers mailed back the questionnaire in a stamped self-addressed envelope. Forty-seven responses were obtained, which was a return rate of 60%.

Results

Average annual rainfall of the surveyed farms ranged from 350 mm to 500 mm. Of the farm area sown to crops, on average cereals made up 67% of area, peas 13%, other pulses 8% and canola 11%. Pea yields averaged 53% of wheat yields in the last 3 years (wheat 3.4 t/ha and peas 1.8 t/ha). An increase in wheat yields over the last decade was reported by 98% of farmers. By contrast only 30% of farmers reported that pea yields increased. Most reported no change (55%) while some reported a decline (15%). The

most common reasons given for an increase in wheat yields were improved fertility (91%), better rotations for disease control (46%), improved weed control (40%) and improved varieties (18%).

Farmers recognise that peas provide benefits to the overall farming operation. The benefits of peas that were rated most highly were better cereal yields, cereal disease break and improved wheat protein. However 43% of farmers planned to decrease their area of peas in the survey year. The major problems with peas that farmers identified were lack of good varieties, low/variable profits, not competitive with weeds and disease problems particularly blackspot.

Farmers have changed their production practices in an attempt to increase yields and profits of pea crops.

One third have decreased the frequency of peas in the rotation in the last decade and two thirds of farmers now sow peas every 5 years or more. Sixty percent of farmers have increased the phosphorus rate they apply to peas compared to a decade ago. Many farmers are applying zinc to pea crops. Two thirds have increased their sowing rates compared to a decade ago. The current sowing rates ranged from 90 to 130 kg/ha, which equates to 40 to 60 seeds/m². Farmers who have delayed sowing are more likely to have increased sowing rates than farmers with the same sowing date (Table 1).

Table 1. Changes in sowing rate, pea yield trends and farmers assessment of blackspot in relation to change in sowing time in the last decade.

Change in sowing time	Sowing rate			Pea yield trends			Blackspot severity		
	Increase	Same	Decrease	Increase	Same	Decrease	Increase	Same	Decrease
Earlier	1	2	0	0	1	2	0	2	0
Same	13	9	0	5	15	2	3	15	0
Later	17	5	0	9	10	3	3	10	5

Peas are predominantly sown from mid May to end of June (Fig. 1). Half the farmers have delayed sowing peas compared to a decade ago, particularly the farmers that previously sowed peas in May. The reason for the delay was to reduce the risk of blackspot. The second most common reason for delayed sowing was to aid weed control. Farmers who have delayed sowing were more likely to report that pea yields have increased (Table1). Some of the farmers who have delayed sowing believe that blackspot severity has decreased but the majority reported little change in the incidence of the disease (Table1).

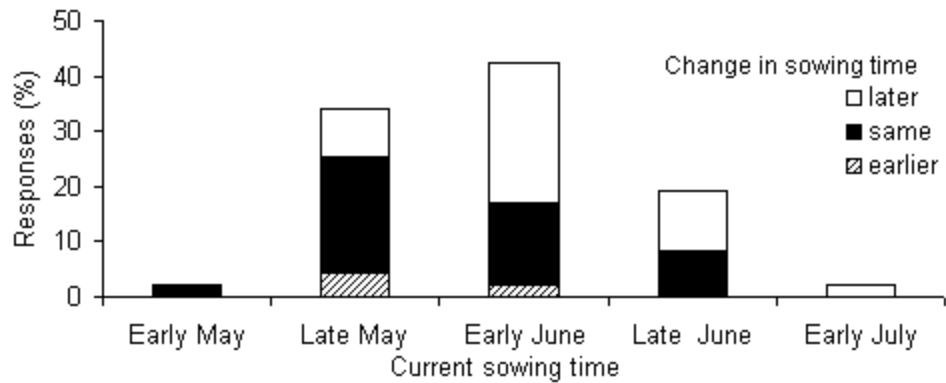


Figure 1. Distribution of current sowing time of peas and the change in sowing time in the past 10 years.

Pea diseases were considered to be the major limitation to pea production. Blackspot was the disease most frequently cited as a problem for pea production (Fig. 2) and having the largest effect on pea yields. Powdery mildew and downy mildew are the other diseases that farmers are most concerned with. Farmers are delaying sowing and adopting wide rotation to minimise the effects of blackspot (Fig. 3). Ninety percent of farmers never use seed dressing fungicide or a post-emergent fungicide to control disease.

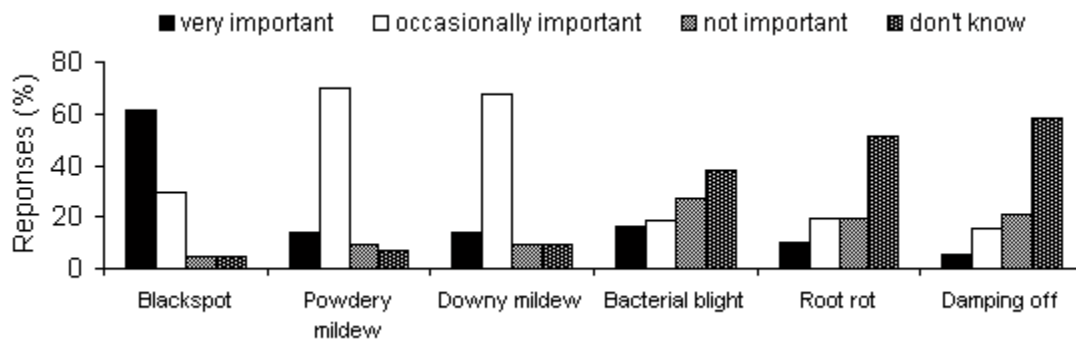


Figure 2. Response to the question: How important are these diseases to pea yields on your farm?

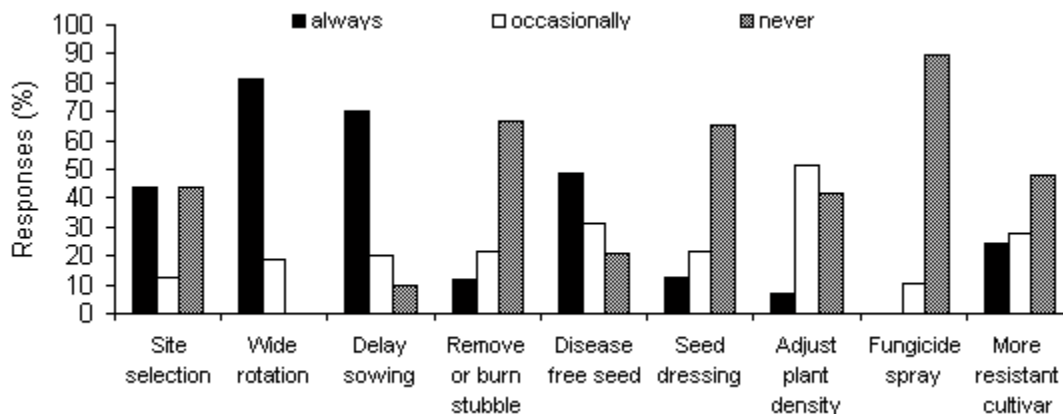


Figure 3: Response to the question: What measures do you take to minimise the effects of blackspot in peas?

Weeds are another concern to farmers with 75% of respondents saying they have herbicide resistant weeds present. Many farmers are now putting more importance in weed management than they did in the past. Sowing rates have been increased to compete with weeds and delayed sowing is used with knockdown herbicides prior to sowing to help control weeds. Of the 14 farmers who report that pea yields have increased 12 gave better weed management as one of the reasons for increased yields.

Discussion

Many of the farmers surveyed were dissatisfied with the performance of peas and the slow improvement in pea yields achieved in the last decade. At the beginning of 1999, farmers planned to grow fewer peas than in past years. While farmers were dissatisfied with the performance of peas they recognised that peas provide substantial benefits to the following cereal crops, such as less cereal root disease and some nitrogen benefit. Farmers are applying more nitrogen fertiliser to their cereal crops so the nitrogen benefit of pea crop may not be as important as it was in the past.

The greatest concerns farmers have in producing field peas are diseases and weeds. It is likely that these factors contributed to the decline in pea yields from 1983 to 1994 (2). Farmers are changing their production practices to try to decrease disease pressure and improve weed management. They feel that changes they have made in weed management practices are more beneficial than changes they have made in disease management. Sixty percent of farmers want more research into pea diseases and only 20% want more research into weed management.

The main disease farmers are concerned about is blackspot. In recent years farmers have been advised to delay sowing and widen rotations to decrease the severity of blackspot. This survey found farmers are adopting these recommendations. All farmers who have delayed sowing gave the reduction of blackspot as the reason, and 80% of farmers use a wide rotation to minimise effects of blackspot. The sowing time most commonly used now is a fortnight later than the sowing time used in 1995 (1). The most common time between pea crops is now 5 years or more while in 1995 it was 3 years (1). In spite of adopting delayed sowing and wider rotations only a limited number of farmers have reported that blackspot levels have decreased or pea yields increased. This indicates that more research is needed to find optimum sowing time and rotation length for reduced blackspot levels and maximum yields. The farmers themselves also would like more research done into disease control of peas.

Dressing pea seed with the fungicide Apron provides good control of downy mildew and dressing pea seed with the fungicide P-Pickle T can provide protection from blackspot for 6 weeks. Farmers are not using these fungicide seed dressings in spite of recognising that downy mildew is occasionally important disease and blackspot is a very important disease. This suggests there is some confusion over the usage of fungicide seed dressings or that farmers are unsure of the economics of using these seed dressings.

CONCLUSIONS

Farmers are generally dissatisfied with field peas and believe they are not performing as well as other crops. The disease blackspot is of major concern and farmers are delaying sowings and widening rotations in an attempt to decrease blackspot levels. To date this has resulted in a small number of farmers reporting decreases in blackspot levels or increased pea yields.

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References

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