

ACTIVITIES WITH MISCELLANEOUS CROPS FOR
POTENTIAL PRODUCTION IN CENTRAL OREGON

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ABSTRACT

The search continues for crops of economic value to Central Oregon agriculture. Experimental plantings of an edible pod pea (Pisum sativum L. cv MHP 303 or Japanese Snow Pea), meadowfoam (Limnanthes alba Benth. cv 703-A) and broccoli (Brassica oleracea Exp. 83-1002-2) were made at the Madras site in 1984. The primary objective for each crop was to determine adaptation for seed production. The edible pod pea produced 2,114 pounds of seed per acre. If growers can obtain a contract this pea is a suitable candidate for production. On meadowfoam, a large percentage of the seed-bearing stems did not elongate which would preclude machine harvest with equipment available by the area farmers. Therefore, spring planted meadowfoam does not appear to be adapted for seed production at Madras. Broccoli has potential as a seed crop but additional research is needed to define conditions necessary for high yields.

I. PEAS

A seedbed in two small fields was prepared in the spring with a disk, harrow and roller. On April 6, 195 pounds of 16-20-0 per acre was incorporated. Treflan at 1.5 pts/A was pre-plant soil incorporated on April 13. Field two of 2.27 acres and the north end of Field eight, .9 acres, were planted at 100 and 40 pounds seed per acre, respectively, on April 13. Fields were sprinkle irrigated as needed.

On August 3, 14 plants were selected randomly throughout each of the two fields from which information in Table 1 was obtained.

Both fields were swathed on August 10 and harvested with a John Deere 45 combine on August 21 with a cylinder speed of 350 rpm - the lowest setting. Excessive seed splitting amounting to 16 percent clean-out, occurred at this speed. The total clean seed from the fields was 6,700 pounds (2,114 lbs/A). A substantial gain in yield could have been achieved

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by proper combining. The mechanical damage was reflected in the 60 percent germination with 40 percent abnormal seedlings. This variety of peas has a tall vine and is rather late maturing. The seed is smooth with yellow cotyledons and is from one-quarter to three-eighths of an inch at its widest diameter. There were slightly more shoots, pods, seeds per pod, and seeds per plant in Field eight which was planted at 40 lb/A (Table 1).

The light planting rate gave maximum seed increase. It would be particularly appropriate for small quantities of stock seed.

However, the 100-pound-per-acre planting rate probably would give the highest yield per acre.

Table 1. Characteristics of Japanese Snow Pea, Madras, Oregon, 1984

Characteristic	Field Number	
	2	8
Average plant height (in)	49	47
Number first pod-bearing node	16	14
Average number shoots/plant	2.2	2.6
Average number pods/plant	14	20
Average number seeds/pod	3.5	3.8
Average Number seeds/plant	48	75

Harrisburg Seed Processing was the contracting firm and originally it was thought that the Japanese Company would be interested in 400-500 acres for 1985 production in Central Oregon. No information is available on whether this intention was fulfilled.

Growers probably could produce high yields of this type of pea with good quality.

II. MEADOWFOAM

Meadowfoam is a winter annual plant domesticated at Oregon State University for its potential useful seed oil. The crop is especially well adapted to the climate, soils, and farming practices of the Willamette Valley. A grower's association has been formed in the Valley for the production and marketing of the seed. Last year, questions arose about its adaptation in Central Oregon as a spring planted crop since it is not winter hardy. Therefore, the Station planted about 15 rows for observation at Madras, each plot about 20 feet long at weekly intervals starting on March 15, 1984. Environmental

conditions were such that very little stem elongation occurred. Flower buds formed in April and early May almost regardless of planting dates. Some buds and flowers were at soil surface and others extended to eight inches tall (Table 2). Perhaps plants would have been a few inches taller in a mass seeded stand. A grower probably would have extreme difficulty swathing and combining such a crop. These difficulties combined with the fact that the seed shatters rather easily may preclude this crop from economically feasible seed production in Central Oregon.

Seed was obtained only from plantings made on March 15, 22, and 29 and April 5 and 12. Data from the first three plantings showed that only slightly less than 50 percent of the flowers set seed with an average of three seeds per flower. There is usually a potential of five seeds per flower. No purity and germination tests were made on any seed but it was small, shriveled, and of poor appearance.

Table 2. Average height, percent fertile flowers and seeds per flower on Meadowfoam planted on three dates, Madras, Oregon, 1984

Planting Date	Ht. (in)	Fertile flowers (%)	Avg. No. seeds/flower
March 15	7.5	49	3
March 22	8.3	44	3
March 29	8.3	48	3

Seed production of meadowfoam in Central Oregon does not appear to be a feasible consideration based on the limited observations given in this report.

III. BROCCOLI

Experimental 83-1002-2 broccoli from Scattini Seeds, Inc., was planted April 23, 1984, on raised beds three feet wide with 14 inches between rows. The field was prepared in the spring. Two hundred pounds of nitrogen, 87.4 pounds P, 33.3 pounds K, 40 pounds S, and 10 pounds Zn per acre were incorporated during seedbed preparation. Irrigation was by sprinkler as needed. A poor stand was obtained because of planting in loose, improperly formed beds that were too wet to obtain good seed coverage. A much earlier spring planting date was planned but the wet weather interfered. The object was to obtain some cool weather to induce bolting (seedstalk development). Generally, for biennial vegetables like broccoli the stems need to be nearly one-eighth inch in diameter when exposed to average chilling temperatures below 45°F for 1-2 months. Cooler temperatures may shorten the exposure period.

For seed production it is important to obtain 100 percent bolting. However, only about 15 percent of the plants bolted but these seedstalks had numerous flowers. Honey bee activity was good but the growing season was too short to get mature seed on most plants. In mid-October, about 20 plants with the most mature seed pods were pulled by hand, bagged, and allowed to air dry before threshing. Approximately 1.5 pounds of clean seed were obtained. The seed condition was poor. Most seed was small, wrinkled, and showed signs of immaturity. Scattini received the seed but no germination or other data are available yet. There was a problem with the imported cabbage worm which completely defoliated many plants. Also, plants were not thinned in the rows, which had some effect.

It may be possible for growers to obtain economic yields of high quality seed by planting early (February and March). However, additional research should be conducted on broccoli seed production.

References

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