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HOME GARDEN POTATO PRODUCTION STUDY

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INTRODUCTION:

Potatoes are a very popular garden vegetable. A large number of home gardeners are planting potatoes for economic reasons as well as the enjoyment of growing some of their own food.

A potato evaluation was established at the Dickinson Research/Extension Center garden during the spring of 1996. The primary objective was to evaluate variety performance under Southwest North Dakota climatic conditions. This was a dryland study, since no supplemental water was applied during the growing season. Potato varieties included:

New Leaf Russet Burbank--This variety has been bred to include a BT gene to provide resistance to Colorado Potato Beetles. This is a late maturing variety with large tubers and shallow eyes. It is somewhat resistant to common scab but is susceptible to other common potato diseases.

Norchip--a white potato developed by the NDSU Research Centers in 1966. Norchip is medium in maturity, and tubers are round to oblong. It has been well accepted by potato farmers as an excellent chipping variety. It is scab resistant, but it is susceptible to blight diseases.

Dark Red Norland--an early-maturing variety with oblong and shallow-eyed tubers with thin skin. This early variety has excellent table quality.

Goldrush--developed by the NDSU Research Centers and was released in 1992. It is medium in maturity, tubers are oblong, a fairly high yielder and has resistance to common scab and some resistance to verticillium wilt. This russet potato has excellent baking qualities.

This project will allow local residents to observe variety differences during the growing season. This study was included in the annual horticulture tour held during the Annual Dickinson Research/Extension Center Summer Field Day. It was also used as a part of the horticulture in-service training session for Western North Dakota extension agents as a professional improvement program.

OBJECTIVE:

The objective of this project was to evaluate differences in variety performance under local growing conditions. Varieties were evaluated on production, disease resistance, response to fertilizer and herbicides, response to insect activity and table quality.

Results of this project will be utilized in making potato variety recommendations to local gardeners.

MATERIALS AND METHODS:

Site preparation included rototilling, and a low-rate application of urea was broadcast prior to planting.

Certified seed of all four varieties were planted by hand on May 13 and 14 with a five-foot row spacing and a one-foot spacing between plants. Three 52-foot rows were planted of each variety, and this was replicated once within the plot. A total of 1,248 feet of potatoes were planted.

After planting, the herbicide, Prowl, was applied before the potatoes emerged at the equivalent rate of 1.8 pints per acre. Emerged weeds were rototilled between rows and hoed within the rows. Major weed problems were a very heavy infestation of common purslane. Other weeds included redroot pigweed, dwarf mallow, tansy mustard and common lambsquarters.

Emergence of potatoes was delayed due to the extremely cool growing conditions. Emergence was good for all the varieties with the exception of Goldrush. Emergence of this variety was very erratic, and some replanting took place.

Adult Colorado Potato Beetles emerged in June with the infestation classified as light. Sevin dust was applied on July 11 to control potato beetle larva feeding damage.

The harvest of these potatoes was delayed due to damp conditions this fall. Potatoes were harvested by hand on September 27.

RESULTS AND DISCUSSION:

Weed control from Prowl herbicide was excellent early on. However, season-long control was not received, since the re-emergence of common purslane started around July 20. Re-emerged weeds were rototilled.

Infestations of Colorado Potato Beetle larva and adults were evaluated on July 11. Five plants were randomly evaluated from each row. Infestation of adult beetles ranged from 0 to 3 per plant. Larval feeding was more extensive with numbers per plant ranging from 0 to 27. Leaf defoliation ranged from 0 to 50 percent. The variety that was obviously most affected by Colorado Potato Beetle damage was Norchip. The resistance to the Colorado Potato Beetle on New Leaf Russet Burbank was extremely effective with no damage evident.

There were some differences within the varieties during the growing season in plant size and form. The New Leaf Russet Burbank had the most plant growth and looked extremely good season-long. The Dark Red Norland had the smallest plant size, and since it is an early variety, it was the first to start drying down.

Production yields were disappointing, and the reason for this was lack of moisture. The highest yielding variety was New Leaf Russet Burbank with 225 cwt/acre; followed by Norchip with 203 cwt/acre; Dark Red Norland with 139 cwt/acre; and Goldrush with 136 cwt/acre.

Potato quality was also disappointing because of a large number of small potatoes and a wide variation in size and

shape. The New Leaf Russet Burbank had the most size and shape variation, and the Norchip was the most uniform tuber variety.

Several volunteers assisted in the evaluation in table quality of the four varieties. Even though very little difference was reported, the Norchip variety was liked by those doing the taste evaluation. This group felt that another advantage to the Norchip variety were the shallow eyes. Overall, the taste quality was very good for all varieties.

NOTES OF APPRECIATION:

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