



VEGETABLE CULTIVAR AND CULTURAL TRIALS 1998

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Impact of low dosage foliar applied 2,4-D on skin color of red potatoes

Foliar application of the herbicide 2,4-D has been reported to enhance the red color and improve skin appearance in red-type potatoes (Norland, Pontiac etc). This management practice is extensive used in production areas of north-central United States where warm soil temperatures interfere with good color development. **This trial examined potential to use 2,4-D to enhance skin color of Norland grown in Saskatchewan.**

**** 2,4-D is not licenced for application to potatoes in Canada. ****

Trials were conducted at the Horticulture Science Department Potato Research Plots in Saskatoon from 1996-1998. The site features a sandy loam soil. Norland (regular clone) was tested in all years. Standard management practices for irrigated potatoes were employed. The spray was applied when the crop had just begun to set tubers. Low volatile 2,4-D ester was applied at either 28 g a.i./a (recommended rate) or 60 g a.i./a (2 X rate) in 80 l/ha of water. The time of application and spray concentrations are based on recommendations by the University of Minnesota. The plots were harvested and graded in early October. Skin color was evaluated for 50 randomly selected tubers from each replicate of each treatment. Samples were also evaluated following storage.

Results - In 1996 and 1997 there were no indications of phytotoxicity or any changes in canopy structure or leaf shape following application of the 2,4-D. In 1998, the classic fiddleheading symptoms associated with 2,4-D exposure were observed within one week of treatment. These symptoms could be detected for several weeks but they did not appear to slow crop growth.

Table 1. YIELDS AND TUBER SIZE DISTRIBUTION FOR NORLAND POTATOES TREATED WITH FOLIAR APPLIED 2,4D IN 1996-1998

		cwt/a + % of Crop														
		1996					1997					1998				
		Total	Medium	Small		Total	Medium	Small		Total	Medium	Small				
Control		496	386	78%	28	6%	392	319	81%	20	5%	393	350	89%	2.8	7%
2,4-D		469	374	80%	26	6%	361	318	84%	21	6%	392	350	89%	2.5	6%
0.05	LSD	NS	NS	NS	NS	NS	**	*	NS	NS	NS	NS	NS	NS	NS	NS

Treatment of Norland potatoes with 2,4-D resulted in no significant changes in yields or tuber size distribution in the three test years (Table 1.) . In 1996, at harvest, some of the tubers coming from the 2,4 D treated rows were obviously darker, with a smoother, shinier skin than tubers from the control rows. However, this difference was not consistent. Skin color in 1997 was uniformly poor - we suspect because of the hot conditions prevailing through July and August. When tuber colors were re-evaluated following six months of storage (4oC and 80% R.H.), the 2,4-D treated tubers had significantly darker color. Skin color of the 1998 crop at harvest was better than in 1997. There was no significant effect of the 2,4-D treatment on skin color at harvest.

Conclusion - Improvement in the color of red potatoes would enhance marketability, particularly if the treatment helps hold the color through storage. In this trial, foliar application of low rates of 2,4-D produced little change in yields or skin color of Norland potatoes either at harvest or following storage. The lack of response may be related to improper time of application therefore multiple applications will be evaluated in 1999.