UPDATE ON ADVANCED SELECTIONS IN THE UW POTATO BREEDING PROGRAM

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The strength of the UW potato breeding program has been its chipping materials. Snowden has become one of the most important chipping varieties in the US. In our current advanced selections, about 80% are chipping selections. We have analyzed the chipping characters of all the existing selections during 1996. The selected lines were planted at both Hancock and Rhinelander research stations. Chipping tests were performed under five different conditions: 1) freshly harvested; 2) directly out of three month storage under 40°F; 3) reconditioned after three month storage under 40°F; 4) directly after six month storage under 40°F; 5) reconditioned after six month storage under 40°F. Seventeen advanced selection lines showed chip quality equal to or better than Snowden, with yields between 322.3 and 542.3 cwt/A which exceeds Atlantic, Norchip and Snowden in 100%, 47%, and 17% of cases, respectively. A remarkable line is W1242, superior to Snowden in chip color and extremely high yielding in the commercial production area of Hancock. In the first year of North Central Regional Trials, W1242 out-yielded the majority of the advanced lines from other states and had medium solids content and the best chipping color. Several good chipping lines were also identified in early breeding generations. In 1995, we found 13 lines with better chipping ability than Snowden (after 6 month storage at 40°F without reconditioning) in the 40 Hill stage (5th field generation), 27 selections in 20 Hill stage (4th generation) and 57 selections in 8 Hill stage (3rd generation).

We intensified our effort on Russet breeding in 1996. Forty breeding lines and varieties from the best Russet programs in Idaho, Colorado, North Dakota, Minnesota and Maryland were introduced as parents in an intensive crossing scheme. Our objective is to produce early Russet lines, with blocky medium heavy net tubers, with good packing and specific gravity over 1.075, for mix purpose (fresh market and processing). Since the volume of Russet selections in the program has been limited to date, the effort put into Russet breeding will be intensified in coming years in order to bring rapid results to the industry.

As a result of the advanced selection trials in Hancock and Rhinelander (44 entries including six standard varieties), four lines will be entered in the North Central Trials in 1997:
W1313 - a medium-late chipping line, with good vigor, yield and solids, chipping very well when processed directly from 40°F storage of three and six months.

W1374 - an early chipping line, equal to Atlantic in yield, chip color, and solids but earlier in vine maturity with no internal defects, chipping well from 40°F after three month storage with reconditioning.

W1151rus - a medium-early Russet line, similar to Russet Norkotah in shape, net and earliness, but more resistant to scab and early blight.

W1348rus - a medium-late Russet line, of Russet Burbank tuber type but without tuber malformation and internal defects of Burbank, with excellent yield and good solids.

An additional selection of interest is W84-75R. This dark red selection is noted for high set and its tendency to produce an extremely high percentage of B-sized tubers (75-80%). It has been tested with a number of seed and commercial producers in recent years and will continue to be evaluated for commercial adaptation.