Onion Variety Trial, Safford Agricultural Center 1986

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SUMMARY

As a followup to the previous years onion variety trial (1), 23 of the more promising long-day varieties were retested along with 5 new intermediate-day varieties. The soluble salts and exchangeable sodium percentage were high (4340 and 28.1%, respectively) in the field where the onions were grown. This suppressed the yields significantly from the previous year. The top yielder produced 386 sacks (50 lbs) compared with 956 sacks in 1985. The top yielders from 1985, Durango and Inca, performed well again this year. The new intermediate-day varieties produced well also and seem quite promising.

INTRODUCTION

An onion variety trial, including 92 varieties of long-day onions, was grown in 1985. The results indicated that onions could be a viable alternative crop for the Safford area. A followup experiment on different soil, including the better yielding varieties plus some new entries, was considered necessary.

MATERIALS AND METHODS

This variety trial was performed on the Safford Agricultural Center, at an elevation of 2950 feet above sea level. Row lengths were 10 feet, 4 lines of onions were planted on each 40-inch bed. After stands were established, the plants were thinned to a two inch spacing. Other pertinent information is given below:

SOIL TYPE: Pima clay loam

PREVIOUS CROP: Grapes

TILLAGE: Disced, ripped twice, disced, rototilled, land-planed, bedded, rolled, mulched, and shaped

EXPERIMENTAL DESIGN: Randomized complete block with 4 replications

PLANTED: 21 March 1986, watered up

HERBICIDE: None

FERTILIZER: 100 lbs/ac urea and 330 lbs/ac 16-20-0 preplant, 100 lbs/ac urea on 30 May and again on 27 June

SOIL TEST: pH 8.2, EC 6.2 (soluble salts 4340 ppm), Nitrogen 90 ppm, Phosphorus 5 ppm, Potassium 613 ppm, Sodium 61.8 meq/l, Calcium + magnesium 10.2 meq/l, Exchangeable Sodium Percentage 28.1%, Organic matter 0.65%

IRRIGATION: Approximately weekly from 2 April to 22 August

INSECTICIDES: None

HARVEST: 2 September

SORTED AND GRADED: 12 September

RESULTS

Table 1. Yield (50 pound sacks/acre) and Percent Size Fractions of Varieties.

Variety	% Jumbo	% Large	% Medium	% Small	Yield
INCA	0	33	44	10	386
ARMADA XPH 428	0	22	64	14	369
ARCO 1607W	1	38	51	10	333
ARCO 7063-4	0	18	56	26	299
ARCO 7064-4	0	36	49	15	299
DURANGO	5	12	51	32	252
ACO 967R	0	3	47	50	241
ARCO 7054-4	0	29	54	17	220
AUTUMN BEAUTY	0	23	57	20	208
ONION WINNER	0	45	37	18	204
VEGA	5	16	51	28	202
FOXY	0	17	41	42	195
HYB. OLYMPIAN	5	39	45	11	186
CELEBRITY	0	28	43	29	182
MAGNUM	0	8	42	50	152
ARCO 490-2	0	47	43	10	152
AVALANCHE	0	28	33	38	150
GOLDEN CASCADE	0	19	52	29	132
PEDRO	0	6	53	41	131
PECKHAM	0	26	56	18	126
YEL. HYB. X100	0	24	52	25	104
COLORADO #6	0	27	39	34	102
PSR 385	0	17	40	43	88
VALDEZ PRR	0	36	37	27	78
GOLDEN TREASURE	0	0	45	55	64
DAI MARU	0	64	29	7	61
RINGMASTER	0	44	42	14	33
MOX1008	0	52	36	12	22

DISCUSSION

Because of the high salt content in the soil, stands and yields were suppressed. MOX1008 and Ringmaster were the least salt tolerant, having at least one of the four replications with no plants surviving. Plant populations varied from 141,466 plants per acre for ACO967R to 2614 plants per acre for MOX1008, but the optimal plant population would have been above 200,000 plants per acre. A correlation coefficient (r) of 0.80 was found between yield and plant population, which leads one to believe that some of the yield reductions were due to poor stand establishment under the salty conditions.

REFERENCES

1. L. J. Clark et.al. 1986. Onion Variety Trial, Safford Agricultural Center. 1986 Vegetable Report, College of Agriculture. University of Arizona. pp. 76ff.