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Spartan Sleeper – A New Hybrid Onion for Long Term Storage

Michigan State University Agricultural Experiment Station and Cooperative Extension Service

Research Report

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Issued November 1974

2 pages

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RESEARCH REPORT

259

FARM SCIENCE

FROM THE MICHIGAN STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STATION EAST LANSING

Spartan Sleeper — A New Hybrid Onion For Long Storage

Grant Vest and C.E. Peterson¹

INTRODUCTION

Onions grown in Michigan and other northern states are often stored for 4 - 6 months before they are marketed. To prevent sprouting during storage, onion plants can be sprayed with maleic hydrazide before harvest. Duration of storage can also be increased genetically by incorporating genes that inhibit sprouting into new onion varieties.

The onion hybrid Spartan Sleeper released cooperatively by the Department of Horticulture, Michigan Agricultural Experiment Station and the U.S. Department of Agriculture was developed to withstand prolonged storage without sprouting.

This onion should permit greater flexibility for growers and shippers by allowing them to supply late, export and processing markets. The consumer should also benefit from this onion's increased storability.

DESCRIPTION

Spartan Sleeper is a hard, globe-shaped onion with brown outer scales which are retained well during storage and handling. These traits make it

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Spartan Sleeper (center) with two onion varieties commonly grown in Michigan, Spartan Banner (left) and Trapp's DYG.

suitable for mechanical harvesting and bulk storage. Mechanical measurements (Table 1) show this hybrid is firmer than Trapp's Downing Yellow Globe (DYG) or Spartan Banner, and storage tests demonstrate it does not sprout as readily as either onion (Table 2). Its yields have equalled those of Trapp's DYG, but are not as high as those of Spartan Banner (Table 3). However, its superior storage quality compensates somewhat for this deficiency. Spartan Sleeper matures at the same time as Trapp's DYG, but more uniformly.

Table 1. Bulb hardness of three onion varieties grown in Wisconsin and Michigan during 1971, 1972 and 1973

	Wisconsin			Michigan			Average
	1971	1972	1973	1971	1972	1973	
Trapp's DYG	79.0(a)	80.4	83.0	79.8	77.5	83.0	80.4
Spartan Banner	78.0	77.2	82.0	79.9	78.1	83.2	79.7
Spartan Sleeper	83.0	80.9	83.5	80.9	81.4	83.4	82.2

(a) Measured with Shore Durometer Type "O - 2." Highest number is hardest.

Table 2. Sprouting percentages of three onion varieties grown in Wisconsin in 1971

1972 Date	Trapp's DYG	Spartan Banner	Spartan Sleeper
March 1	18 (a) (33%) (b)	10 (18%)	0 (8%)
April 1	43	36	2
May 1	59	61	15
June 1	69	69	26
July 1	73	76	41

(a) Cumulative on date given, no sprout inhibitor applied. Stored at 35-40°F, Oct. 1 - Dec. 1; 50-55°, Dec. 1 - Feb. 1; 60-65°, Feb. 1 - Apr. 1; 65-70°, April 1 - July 1.

(b) Percent shrinkage by weight on March 1, 1972, in parentheses.

Table 3. Yields in 50 lb bags/Acre of three onion varieties from plots on grower farms in Wisconsin and Michigan

	Palmyra Wisc.			Stockbridge Mich.		Grant Mich.		Average
	1971	1972	1973	1972	1973	1972	1973	
Trapp's DYG	590	929	708	788	678	732	876	757
Spartan Banner	760	1135	827	855	905	811	---	882
Spartan Sleeper	638	964	714	759	813	716	826	776

ORIGIN

Spartan Sleeper is a 3-way cross from the parents (MSU 2935 x MSU 1459) MSU 4535. MSU 2935 and MSU 1459 are selections out of the open pollinated source Iowa Yellow Globe 53. Both inbreds produce hard bulbs, high globe in shape with light yellow-brown scales. The procumbent seed stalks of MSU 1459 require this inbred be used only as a pollen parent. The inbred MSU 4535 is a dark, very hard, globe-shaped selection out of Trapp's DYG.

AREA OF ADAPTABILITY AND CULTURAL REQUIREMENTS

Spartan Sleeper grows well in Michigan's muck land areas and should do well in most muck soils in the northern U.S. and Canada where strains of DYG are grown. Under normal conditions, seed should be sown at the rate of approximately 10-12 viable seed/ft of row (3-4 lb/Acre).

GENERAL ACCEPTABILITY

In evaluations of onion bulbs by seedsmen and growers, Spartan Sleeper bulbs have rated consistently higher in appearance than bulbs of Spartan Banner or Trapp's DYG (Table 4).

Table 4. General appearance of three onion varieties as rated by seedsmen and growers in Wisconsin and Michigan in 1971, 1972 and 1973

	Wisconsin(a)		Michigan(b)				Average
	1971	1972	1971	1972	1972(c)	1973(d)	
Trapp's DYG	4.0	4.5	4.5	3.9	3.5	3.8	4.0
Spartan Banner	4.5	5.1	5.4	6.6	6.4	5.5	5.6
Spartan Sleeper	6.3	6.8	6.2	5.8	7.6	5.7	6.4

(a) Average of 4 25-bulb samples from 1971 crop rated for appearance by 6 judges on March 14, 1972. Average of 4 25-bulb samples from 1972 crop rated for appearance by 12 judges on March 18, 1973.

(b) Average of 3 30-bulb samples from 1971 crop rated by 12 judges on March 16, 1972. Average of 3 30-bulb samples from 1972 crop rated by 13 judges on March 14, 1973.

(c) Average of 3 30-bulb samples from 1972 crop rated by 21 judges at Grant, Mich., March 20, 1973.

(d) Average of 2 50-bulb samples from 1973 crop rated by 15 judges, March 19, 1973.

1 = very poor, 3 = poor, 5 = fair, 7 = good, 9 = excellent.