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Michigan State University Extension
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Issued July 2004
4 pages

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Management Profile for Potato Variety Michigan Purple



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Michigan Purple is a new purple-skinned tablestock variety that provides an alternative to red varieties. In 2003, the Michigan Potato Industry Commission (MPIC) signed a two-year trial licensing agreement with Michigan State University (MSU) to market Michigan Purple exclusively. Marketing and agronomic testing are under way through the collaborative efforts of the MPIC, MSU, private industry and the Select a Taste of Michigan program (this innovative program also involves the state Department of Agriculture and Michigan Integrated Food and Farming Systems).

The production information presented here is to aid growers in managing this variety. These are initial findings. Further testing by growers and MSU is under way.

Michigan Purple was bred and developed by David Douches, potato breeder and geneticist at MSU. Michigan Purple has an attractive purple skin and a pure white, uniform flesh color. The specific gravity of this variety consistently falls between 1.062 and 1.073, and it is well suited for the tablestock and/or the canning/dicing market. The fresh market window for this variety is from approximately July through August. The maturity of the variety is medium early, slightly later than Onaway. A 90- to 110-day harvest window would be ideal. The tuber internal quality is excellent for cooking, and the flesh does not darken.

Field selection: Field selection can be as important to this variety as any other aspect of production practices. On-farm observations indicate that choosing a field free of disease is critical to producing an attractive, high quality crop. (See on-farm variety trial information at www.msu.edu/user/longch/.)

It is particularly important to avoid fields with a history of common scab or black or silver scurf. The common scab rating of Michigan Purple has varied from 2.5 to 3 in recent on-farm and research station trials. The standard variety Onaway in the same trials had scab ratings of 1.2 to 1.7. Scab rating is based on a 0-5 rating, where 0 = most resistant and 5 = most susceptible.

Choosing a site with high soil organic matter or applying manure at least 6 months before harvest may improve skin color intensity.

Availability of irrigation at a field site is moderately important. Preliminary evidence suggests that moderate drought stress under non-irrigated conditions may improve skin color. Note that tuber size and yield may be reduced by limited water availability.



Michigan Purple

Photo: Joe Coombs

Seed handling: Precutting seed of Michigan Purple is recommended to allow time for proper suberization (corking) before planting. A seed piece treatment is highly recommended to control black and silver scurf if present

on the seed or if disease is a potential problem at the field site. Optimal planting depth has not been evaluated to date, but preliminary evidence suggests that following standard practices for seed piece planting depth would suffice.

Fertility management and seed spacing:

Preliminary evidence suggests that amending soil with chicken manure acts as a slow-release fertilizer and moderately enhances color. In Figure 1, the combination of 140 pounds of nitrogen fertilizer and 2 tons of chicken manure per acre produced the same tuber yield as 180 pounds of nitrogen fertilizer (Snapp et al., 2003). Split nitrogen applications are recommended — at planting, at hilling, and one to two top-dressings.

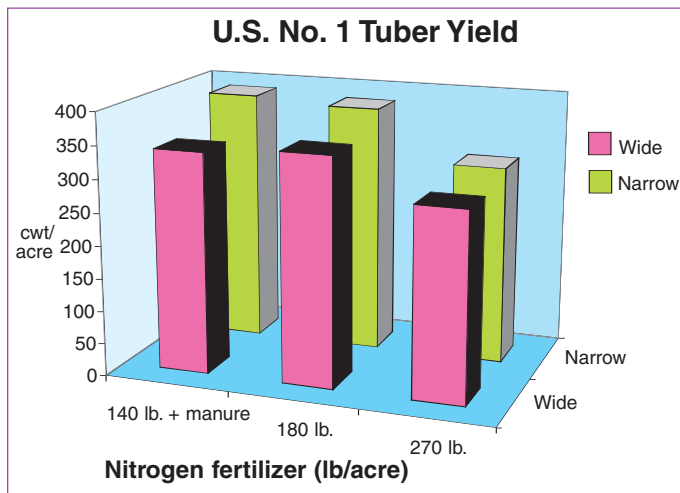


Fig. 1. U.S. No. 1 tubers as influenced by N fertilizer and within-row seed spacing — 13 inches (wide) and 8 inches (narrow).

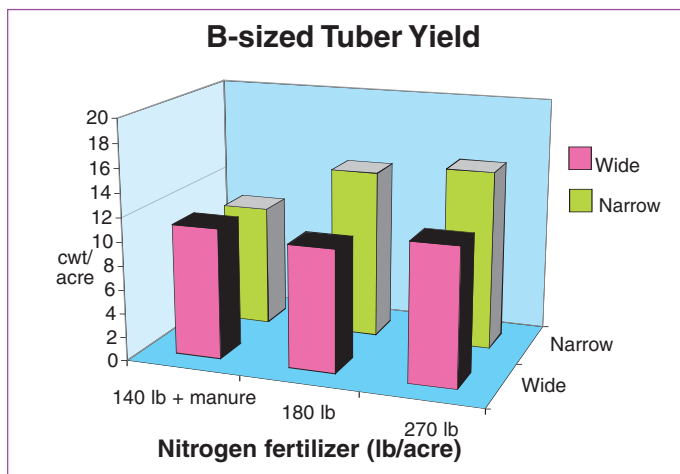


Fig. 2. B-sized tubers as influenced by N fertilizer and within-row seed spacing — 13 inches (wide) and 8 inches (narrow).

Figure 2 shows the effect of nitrogen fertility on B-sized small tuber production. In general, narrow spacing within the row (8 inches between seed pieces) improves yield of under-sized tubers and improves overall tuber production. To limit the production of oversized tubers, an extremely narrow within-row spacing (6 inches or less) may be effective.

Weed and disease management: The application of the herbicides *Dual Magnum* and *Sencor* at labeled rates has been shown to be effective for Michigan Purple. No herbicide sensitivity has been observed to date.

Following the standard MSU fungicide application program is highly recommended to manage early and late blight (see <www.lateblight.org>). This will provide optimal protection of the plant canopy and ensure the best quality crop.

Harvest and storability: Michigan Purple is a midseason variety. Vine kill is recommended 90 to 110 days after planting. Timing of the vine-kill operation is critical to manage tuber size.

Careful monitoring of nitrogen petiole status to prevent overfertilization will also aid in managing crop senescence and tuber size profile (see recommendations in Snapp et al., 2002). Keep in mind that a two- to three-week window between vine kill and harvest is necessary for effective skin set. Achieving good skin set is important to prevent skin feathering and bruising, and to help protect against disease in storage. Because of the importance of a good skin set, green harvesting of this variety is not recommended.

Skin color will fade after harvest and in storage, so obtaining good color in the field is critical. Harvesting this variety when tuber pulp temperatures are above 50 degrees F will help to minimize incidence of black spot bruising.

Tuber management: Entering harvest and storage with deep purple skin color will be your greatest asset because you are marketing the skin color. The intensity of the color at

the start of storage determines color longevity. Overall storability of this variety has proven to be short. Preliminary evidence suggests that holding skin color is difficult, and the variety appears to be susceptible to storage pathogens. For insect and disease management information for the crop and for tuber storage, see the latest version of MSU Extension Bulletin E312, "Insect, Disease and Nematode Control for Commercial Vegetables" available through your county Extension office. Or, on the Web, go to web4.msue.msu.edu/veginfo/index.cfm and select "potato" for potato insect, disease and control recommendations.

Research on improving skin color intensity is under way. Application of 2,4-D L.V. 4 ester (Riverdale) as a growth regulator enhances tuber color in some red tablestock varieties. A very low rate, 2.3 fl. oz. of 2,4-D L.V. 4 ester per acre applied at the pre-bud stage and again 10 to 14 days later may enhance skin color in Michigan Purple. (unpublished data, E. Van-Rooyen).

In summary, managing for an intense purple hue and a good skin set is critical to producing high quality Michigan Purple tubers.

References

Snapp, S.S., D. Smucker and M. Vitosh. 2002. Nitrogen Management for Michigan Potatoes. Extension Bulletin E-2779. East Lansing, Michigan State University.

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Acknowledgements. To carry out the research reported here, we greatly appreciate support from the Michigan Potato Industry Commission, the U.S. Department of Agriculture and the Michigan GREEN initiative.

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