COOPERATIVE EXTENSION SERVICE
MSU AG FACTS

MONTCALM and MECOSTA

Halo Blight Tolerant Kidney Bean Varieties for Michigan

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Northern Michigan seed field of Montcalm DRK. Certified seed produced in northern Michigan has superior physical quality and is free of seedborne diseases.

By L. O. Copeland and M. H. Erdmann
Extension Specialists, Department of Crop and Soil Sciences

MICHIGAN FARMERS CAN NOW PRODUCE kidney beans with less risk of yield loss due to halo blight *(Pseudomonas phaseolicola)*.

Two new halo blight-tolerant varieties have recently been developed at Michigan State University,[1] and certified seed is now available. These are Montcalm dark red kidney (DRK) and Mecosta light red kidney (LRK), and both represent significant break-throughs for Michigan's bean producers in their efforts to produce disease free beans.

Montcalm (DRK)

This variety is similar in appearance, agronomic characteristics and maturity to Charlevoix, the standard dark red kidney variety in Michigan. Like Charlevoix, it has excellent seed type with good canning and salad quality. Under moderate to heavy halo blight infestations, Montcalm will outyield Charlevoix. In the absence of halo blight, they will have comparable yields. Like Charlevoix, Montcalm is susceptible to common bacterial blight, and consequently a clean seed program has been employed in its increase.

Mecosta (LRK)

This new halo blight-tolerant, light red kidney bean variety is similar in appearance and agronomic characteristics to Manitou and California or Idaho light red kidney. However, under moderate to heavy halo blight infestations, it should yield significantly better than these types. Like Manitou, it has excellent seed type and canning quality. However, unlike Manitou, it has good resistance to bean common mosaic virus; both are susceptible to common blight.

[1] *The Michigan Agricultural Experiment Station and the Agricultural Research Service, U.S. Department of Agriculture maintain and support a cooperative program of Disease Control and Variety Improvement of Dry Beans in the North Central States. The program presently involves Dr. M. W. Adams, MSU Bean Breeder, and Dr. A. W. Saettler, ARS/USDA Research Plant Pathologist.*

Yield (cwt) of Montcalm and Mecosta in comparison with other colored bean varieties

Variety	1970	1971	1972	1973	1974	1975	Average
Montcalm	15.01	12.64	24.43	23.42	14.60	24.81	19.15
Charlevoix	18.52	12.30	25.72	23.42	16.52	24.95	20.23
Mecosta	15.17	14.49	24.80	25.11	16.11	25.04	20.12
Manitou	23.05	11.96	20.29	30.73	17.95	26.39	21.56
Mich. Imp. Cran.	24.09	14.82	25.00	28.43	20.09	—	22.48
Swedish Brown	18.63	13.20	30.98	33.17	23.88	—	23.97
Redkote	15.53	11.02	24.96	27.34	—	—	19.71
Calif. DRK	—	12.30	21.81	28.33	—	—	20.81

Data from MSU performance trials at Montcalm and Saginaw Valley Bean and Beet Research farms.

Origin of Halo Blight Tolerance

Genetic tolerance of these two new varieties originated from crosses between Michigan kidney bean types and three halo blight-tolerant light red kidney bean selections from Cornell University. Tolerance in the latter selections is derived from Great Northern No. 1. Following several years of crossing and continued selection at Michigan State University, halo blight tolerance was incorporated into both dark and light red kidney types.

Adaptation

Both of the new varieties are named for prominent kidney bean producing counties of Michigan, however they are adapted to the entire Michigan colored bean area.

Seed Availability

Western Seed. Most seed of kidney beans, as well as other colored bean types planted in Michigan, is produced in the western United States, primarily in Idaho and California. The arid climate in the west is well suited for production of disease-free seed. Low humidity during the growing season prevents build up and transmission of seedborne diseases which cause problems under Michigan conditions. By planting disease free western-grown seed, Michigan growers can avoid the certainty of incurring losses from seedborne diseases.

Northern Michigan Certified Seed. Northern Michigan provides unique conditions for the production of high quality seed. Because of isolation from commercial bean areas in Michigan, favorable soils, and suitable growing season, excellent yields of high quality disease-free seed can be produced. Other than freedom from disease and varietal purity, sound physical condition is probably the most important quality factor desired in field bean seed. Northern Michigan certified seed combines the advantage of production under isolated disease-free conditions and good physical quality characteristics, unavailable in western-grown seed. Michigan-grown seed is usually better in appearance, germination and seedling vigor than western grown seed. This is primarily due to a higher moisture content at harvest, resulting in less mechanical injury during threshing. Idaho seed is normally harvested at about 9-11% moisture, and mechanical injury can be quite prevalent at this moisture level. In contrast, seed in northern Michigan is harvested at about 16-21% moisture making it more resistant to threshing injury.

Because of the proximity of northern Michigan and lower transportation costs, seed produced in this area can often be supplied to Michigan growers at a cost lower than that of western produced seed.

Production Practices for Colored Beans

1. Recommended seeding rates are:
   Kidney beans — 80 pounds per acre
   Cranberry beans — 60 pounds per acre
   Yelloweye beans — 60 pounds per acre
2. The suggested planting date is June 1-15.
3. Beans should be planted following corn, small grains seeded to a clover green manure crop, or after alfalfa. Do not follow beans directly after beans.
4. Use a minimum amount of tillage in fitting land for beans.
5. Base fertilizer application rates on soil tests. Manganese and zinc may be necessary when the pH is above 6.5. Depending upon the previous crop, beans may respond to up to 40 pounds of nitrogen per acre.
6. Refer to Extension Bulletin E-434, "Weed Control in Field Crops" for current herbicide recommendations. A combination of herbicides will generally give better weed control than a single herbicide. A preplant herbicide followed by a preemergence herbicide will give the most effective weed control in many situations.

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