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# 1985

# OHIO POTATO GERMPLASM EVALUATION

The Ohio State University
Ohio Agricultural Research & Development Center
Wooster, OH 44691

# 1985 OHIO POTATO GERMPLASM EVALUATION

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## Introduction

This report contains the results on various trials conducted over the state for the 1985 season. The report contains data on marketable yield, % Bees, % culls, includes results on specific gravity, and chip color collected immediately after harvest.

Over 90 potato cultivars and advanced selections were evaluated in trials across Ohio in 1985. These evaluations included:

1 - Statwide trials of 10 entries located on 6 farms.
2 - Two observation trials of 18 newer entries located on 2 farms from the statewide trials.
3 - Replicated plots at the Muck Crops Branch in Celeryville, OH.
4 - The North East Potato Cultivar evaluation program (22 entries)
5 - The North Central Potato Trials (23 entries).
6 - Seventy one observational breeding lines at OARDC, Wooster, OH
7 - A trial of 11 entries in replicated plots at the Campbell Institute for Research and Technology, Campbell Soup Co., Napolean, Ohio

## STATEWIDE TRIAL

Ten entries were evaluated on six farms located across Ohio. These farms were selected to give different soil and climatic conditions. The participants in the 1985 state wide trials were:

| Cooperating Farm | Soil Type |
|---|---|
| 1. Becker's Falls Farms<br>Beach City, OH | Sandy - silt loam |
| 2. Celeryville Muck Crops<br>Branch, Celeryville, OH | Muck soil |
| 3. Chase Farms<br>Defiance, OH | Sandy loam |
| 4. Logan Farms<br>Mt. Gilead, OH | Silt loam-silty clay loam |
| 5. Galen Moomaw Farms<br>Smithville, OH | Silt loam |
| 6. Harold Thompson<br>Smithville, OH | Silt loam |
| 7. John Mellinger<br>Leetonia, OH | Silt loam |

The 10 cultivars evaluated in this year's over the state trials were:

1. Conestoga
2. Norking
3. Campbell 14
4. Yukon Gold
5. Norchip
6. LA01-38
7. Norchip S
8. Katahdin
9. BR 5991-WV16
10. WNC 521-12

Katahdin and Norchip were included as standards. The Katahdin potato has been grown in Ohio for many years as a standard mid-season variety, primarily for fresh market. The Norchip was included as a standard for chipping tests even though the variety is not as popular in Ohio as in previous years

## METHODS AND MATERIALS

The plots on the 6 commercial farms were grown under standard cultural and pest control practices as practiced by each farm. Plots consisted of double rows approximately 40 feet long (80 seed pieces) and the entries were included in the plots at Celeryville (Muck soil). stand, plant vigor, visible diseases, and other observationswere made during the growing season.

At harvest, tubers were dug with a conventional level-bed digger, left on the soil surface to dry for approximately one hour, then picked up by hand and weighed for total yield for the plot. A 50 pound sample was randomly selected from each replicate for grading.

The 50 pound sample was graded according to U.S. standards in so far as possible. Observations were made on exterior quality characteristics. Ten of the medium to large size tubers were selected from this grading table for cutting and evaluation for hollow hollow heart, internal necrosis and other internal problems. Dave Kelly made the same observations on all 6 farms.

Approximately 20 pounds of tubers were taken from each graded sample and evaluated for specific gravity, and chipping potential by Dr. Winston Bash at the OSU-Pilot Plant Facility.

A composite soil sample was taken after harvest from the plots on each farm. Soil analysis were made at the REAL Laboratory, OARDC, Wooster, OH. See Table 1.

Table 1. Soil Tests for the Cooperating Farms

| Cooperating Farms | pH | Available (lbs/A) P | K | Ca | Mg | Mn | Zn | B | CEC | % Base Satur. Ca | Mg | K |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Becker | 5.3 | 682 | 364 | 1200 | 128 | 134 | 11.7 | .6 | 8 | 39 | 7 | 6.1 |
| Thompson | 5.8 | 244 | 444 | 1550 | 357 | 109 | 19.4 | .8 | 11 | 36 | 14 | 5.3 |
| Mellinger | 5.1 | 968 | 596 | 1210 | 136 | 150 | 22.4 | .8 | 14 | 22 | 04 | 5.5 |
| Moomaw | 5.5 | 250 | 462 | 1210 | 352 | 107 | 23.9 | 1.0 | 13 | 38 | 11 | 4.5 |
| Logan | 5.8 | 96 | 273 | 2480 | 356 | 39 | 8.7 | .9 | 12 | 53 | 12 | 3.0 |
| Chase | 5.1 | 186 | 276 | 3630 | 243 | 51 | 14.3 | 1.3 | 18 | 51 | 6 | 2.0 |

Soil analysis by REAL Labortory, OARDC, Wooster, OH

Table 2. Planting Dates and Rainfall Records - Statewide Trials. 1985

| | BECKER | THOMPSON | MELLINGER | MOOMAW | CHASE | LOGAN |
|---|---|---|---|---|---|---|
| Planting Date | May 7 | May 4 | May 10 | May 13 | May 8 | May 12 |
| Date Killed | None | Sept. 12 | Sept. 12 | Sept. 15 | Sept. 15 | Sept. 17 |
| Date Harvested | Sept. 19 | Oct. 1 | Oct. 2 | Oct. 10 | Oct. 9 | Oct. 8 |
| Rainfall | | | | | | |
| Planting to Harvest | | | | | | |
| May | .. | 7.6 | 5.1 | 7.5 | 1.8 | 4.01 |
| June | .. | 4.8 | 3.15 | 3.8 | 2.0 | 3.70 |
| July | .. | 4.2 | 2.4 | 3.65 | 2.0 | 4.75 |
| August | .. | 4.2 | 2.3 | 4.8 | 4.45 | 5.41 |
| September | .. | 0.8 | 0.53 | 1.0 | 2.95 | 1.90 |
| October | .. | .. | 0.25 | 0.45 | 0.25 | 0.25 |
| Irrigation | 7/15 1" | | | | | |
| Total Water | | | | | | |
| Planting to Harvest | - | 21.6 | 13.95 | 21.0 | 13.45 | 20.02 |
| Planting to Killing Spray | - | 20.8 | 13.20 | 20.25 | 11.75 | 19.00 |
| June, July, & Aug. | - | 13.20 | 7.85 | 12.25 | 9.40 | 13.85 |
| Average Total Yield (cwt/A) | 250 | 310 | 403 | 324 | 428 | 314 |

Notes: Average of 6 farms 388 cwt/A. Daily records recorded indicate that the distribution of the rainfall is of greater imfortance in determining yields than total rainfall, particularly for some of the earlier cultivars.

Table 3. Yield (cwt/a) and Percent of U.S. No. 1 Tubers for 10 Cultivars At 6 Statewide Trial Locations

| | BECKER | | THOMPSON | | MELLINGER | | MOOMAW | | CHASE | | LOGAN | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | U.S. #1 Tubers | | U.S. #1 Tubers | | U.S. #1 Tubers | | U.S. #1 Tubers | | U.S. #1 Tubers | | U.S. #1 Tubers | |
| | cwt/a | % | cwt/a | % | cwt/a | % | cwt/a | % | cwt/a | % | cwt/a | % |
| Conestoga | 205 (7) | 90 | 268 (5) | 80 | 328 (6) | 88 | 189 (9) | 83 | 345 (6) | 94 | 259 (6) | 89 |
| Norking | 179 (9) | 85 | 244 (7) | 85 | 286 (7) | 81 | 217 (8) | 90 | 302 (8) | 85 | 284 (5) | 86 |
| Campbell 14 | 235 (4) | 88 | 251 (6) | 92 | 388 (4) | 88 | 373 (2) | 91 | 447 (3) | 93 | 306 (2) | 87 |
| Yukon Gold | 245 (3) | 91 | 207 (9) | 87 | 275 (8) | 85 | 278 (6) | 96 | 351 (5) | 95 | 238 (8) | 88 |
| Norchip | 192 (8) | 80 | 229 (8) | 87 | 243 (9) | 74 | 242 (7) | 89 | 263 (9) | 64 | 198 (9) | 76 |
| LA01-38 | 281 (1) | 91 | 285 (4) | 91 | 433 (1) | 92 | 376 (1) | 95 | 459 (2) | 94 | 321 (10) | 91 |
| Norchip S | 148 (10) | 79 | 193 (10) | 70 | 235 (10) | 71 | 179 (10) | 74 | 255 (10) | 62 | 104 (10) | 56 |
| Katahdin | 215 (6) | 85 | 313 (2) | 87 | 410 (3) | 89 | 353 (3) | 85 | 468 (1) | 92 | 248 (7) | 71 |
| BR 5991-WV16 | 246 (2) | 87 | 300 (3) | 78 | 351 (5) | 75 | 313 (5) | 85 | 426 (4) | 82 | 289 (4) | 81 |
| WNC 521-12 | 234 (5) | 92 | 326 (1) | 87 | 423 (2) | 89 | 343 (4) | 92 | 330 (7) | 91 | 293 (3) | 83 |

(1): number inside of parenthesis indicates ranking of yield.

Table 4. Percent of B Size and Cull Tubers for 10 Cultivars At 6 Statewide Trial Locations

| | BECKER | | THOMPSON | | MELLINGER | | MOOMAW | | CHASE | | LOGAN | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | % B's | % Culls | % B's | % Culls | % B's | % Culls | % B's | % Culls | % B's | % Culls | % B's | % Culls |
| Conestoga | 4 | 3 | 1 | 6 | 1 | 2 | 3 | 5 | 1 | 1 | 2 | 2 |
| Norking | 8 | 1 | 2 | 4 | 2 | 4 | 2 | 2 | 1 | 3 | 2 | 2 |
| Campbell 14 | 4 | 2 | 2 | 2 | 0.1 | 2 | 1 | 2 | 1 | 1 | 1 | 3 |
| Yukon Gold | 3 | 1 | 1 | 6 | 1 | 4 | 1 | 1 | 0.3 | 1 | 1 | 2 |
| Norchip | 6 | 4 | 1 | 4 | 2 | 6 | 2 | 3 | 2 | 7 | 3 | 7 |
| LA01-38 | 2 | 2 | 0.3 | 3 | 1 | 1 | 0.4 | 1 | 0.3 | 1 | 1 | 2 |
| Norchip S | 6 | 7 | 1 | 12 | 1 | 8 | 1 | 11 | 1 | 8 | 5 | 21 |
| Katahdin | 4 | 3 | 1 | 3 | 1 | 2 | 1 | 3 | 0.4 | 1 | 2 | 7 |
| BR 5991-WV16 | 3 | 2 | 1 | 5 | 1 | 4 | 2 | 3 | 1 | 2 | 3 | 4 |
| WNC 521-12 | 2 | 1 | 0.4 | 3 | 1 | 2 | 1 | 1 | 1 | 2 | 2 | 4 |

Table 5. Average % Stand, Total Yield, Specific Gravity, and Average Percent US No 1, B Size, and Specific Gravity for the Statewide Trials - Six Farms, 1985.

| Cultivar | Average Stand (%) | Aver. Yield (cwt/A) Total | Aver. Yield (cwt/A) U.S. No. 1 | Average Specific Gravity | Average Percent U.S. No. 1 | Average Percent B Size | Average Percent Culls |
|---|---|---|---|---|---|---|---|
| Conestoga | 93 | 305 | 266 | 1.082 | 87 | 4.7 | 8.3 |
| Norking | 95 | 295 | 252 | 1.079 | 86 | 4.5 | 7.8 |
| Campbell 14 | 90 | 370 | 333 | 1.074 | 90 | 4.7 | 5.4 |
| Yukon Gold | 83 | 291 | 266 | 1.081 | 90 | 2.8 | 6.8 |
| Norchip | 92 | 295 | 228 | 1.078 | 79 | 6.8 | 14.7 |
| LA01-38 | 79 | 388 | 359 | 1.080 | 92 | 2.4 | 5.4 |
| Norchip S | 77 | 278 | 186 | 1.079 | 68 | 5.4 | 26.8 |
| Katahdin | 93 | 395 | 335 | 1.070 | 84 | 4.5 | 11.5 |
| BR 5991-WV16 | 80 | 397 | 321 | 1.083 | 81 | 6.5 | 12.9 |
| WNC 521-12 | 86 | 367 | 325 | 1.094 | 89 | 3.6 | 7.8 |

Maturity Season - 1985

Very Early (Less than 110 days)
- Conestoga

Early (110 - 115 days)
- Norking (ND388-1)

Medium Early - Early Midseason (116 - 125 days)
- Yukon Gold
- Norchip

Medium or Midseason (126 - 135 days)
- Campbell 14
- LA01-38
- Katahdin
- Norchip S

Late (136 - 140 days)
- WNC521-12

Very Late (141 and more days)
- BR5991-WV16

## Observation Trials-Statewide Trials

### Introduction

Eighteen entries were evaluated in observation plots on two farms in Columbiana County. Most entries were new promising lines which were evaluated previously in Ohio trials at the Ohio Agricultural Research and Development Center, Wooster, or in other observation trials in Ohio. In some instances, potato breeders in other states suggested varieties to be included in these observation plots.

In addition, observation plots were installed at the Ohio Agricultural Research and Development Center, Wooster. This plot was adjacent to the North Central and Northeastern trials which are discussed later.

### Procedure

The plots for the observation trials were handled in the same manner as for the over-the-state trials. Plot size consisted of two rows approximately 25 feet long (50 seed pieces). Stand, plant vigor, and apparent diseases were evaluated during the growing season. Harvest procedures were the same as described earlier for the over-the state plots. A composite sample was selected from each entry for chipping, specific gravity, and other quality tests.

Table 6. Yield and Grade of Observation Entries In The Statewide Trials

| | THOMPSON | | MELLINGER | |
|---|---|---|---|---|
| | Yield (cwt/A) | % U.S. No. 1 | Yield (cwt/A) | % U.S. No. 1 |
| Ontario | 357 | 82 | 463 | 81 |
| MS700-70 | 338 | 89 | 482 | 88 |
| AK10-1 | 300 | 87 | 360 | 86 |
| Kennebec | 294 | 79 | 478 | 89 |
| CF7688-9 | 273 | 86 | 321 | 87 |
| ND534-4 | 269 | 90 | 318 | 88 |
| G670-11 | 267 | 86 | 450 | 91 |
| Yankee Clipper | 265 | 75 | 317 | 86 |
| MN11373 | 263 | 83 | 302 | 85 |
| ND398-1 | 263 | 87 | 290 | 85 |
| Jemseg | 233 | 88 | 294 | 91 |
| Atlantic | 229 | 89 | 312 | 89 |
| W903 | 211 | 88 | 240 | 86 |
| Superior | 178 | 88 | 246 | 85 |
| WF564-3 | 192 | 86 | 284 | 85 |
| AF330-1 | 165 | 81 | 314 | 87 |
| Simcoe | 158 | 86 | | |
| Sunrise | 132 | 88 | | |

Table 7. Observation-Statewide Trials: Yield, Specific Gravity, and Chip Color

| | THOMPSON | | | | MELLINGER | | | |
|---|---|---|---|---|---|---|---|---|
| | Yield (cwt/A) | Specific Gravity | PC/ SFA* | Agtron | Yield (cwt/A) | Specific Gravity | PC/ SFA | Agtron |
| Ontario | 357 | 1.074 | 3 | 43.0 | 463 | - | - | - |
| MS700-70 | 338 | 1.085 | 2 | 59.5 | 482 | 1.080 | 2 | 60.1 |
| AK10-1 | 300 | 1.084 | 2 | 52.1 | 360 | 1.075 | 3 | 52.3 |
| Kennebec | 294 | 1.077 | 1 | 63.2 | 478 | 1.074 | 2 | 61.9 |
| CF7688-9 | 273 | 1.089 | 1 | 63.0 | 321 | 1.090 | 2 | 59.5 |
| ND534-4 | 269 | 1.068 | 3 | 37.6 | 318 | - | - | |
| G670-11 | 267 | 1.083 | 2 | 57.2 | 450 | - | - | - |
| Yankee Chipper | 265 | 1.082 | 2 | 60.9 | 317 | 1.080 | 2 | 64.4 |
| MN11373 | 263 | 1.078 | 3 | 43.7 | 302 | - | - | - |
| ND398-1 | 263 | 1.080 | 2 | 52.0 | 290 | - | - | - |
| Jemseg | 233 | 1.068 | 2 | 45.3 | 294 | 1.082 | 1 | 58.7 |
| Atlantic | 229 | 1.093 | 1 | 57.6 | 312 | 1.098 | 2 | 60.1 |
| W903 | 211 | 1.082 | 2 | 60.9 | 240 | 1.069 | 2 | 60.7 |
| Superior | 178 | 1.077 | 1 | 62.6 | 246 | 1.082 | 2 | 60.9 |
| WF564-3 | 192 | 1.073 | 2 | 49.9 | 284 | 1.080 | 2 | 61.5 |
| AF330-1 | 165 | 1.080 | 1 | 60.9 | 314 | - | - | - |
| Simcoe | 158 | 1.084 | 2 | 60.1 | - | 1.080 | 1 | 63.3 |
| Sunrise | 132 | 1.070 | 2 | 59.2 | - | 1.083 | 2 | 60.6 |

* PC/SFA - Scale of 1 to 5, with 1 being light coloerd and 5 being dark.

Very Early (less than 110 days) Sunrise

Early (110-115 days)
- Superior 111
- WF564-3 114
- Jemseg 115

Medium Early or Early Midseason (116-125 days)

| | | | | | |
|---|---|---|---|---|---|
| CF7688-9 | 119 | Simcoe | 120 | ND3981 | 120 |
| ND534-4 | 120 | Atlantic | 121 | Y. Clipper | 123 |
| AF330-1 | 125 | MN11373 | 125 | | |

Medium or Mid-season (126-135 days)

| | | | | | |
|---|---|---|---|---|---|
| Kennebec | 126 | W903 | 127 | MS700-70 | 134 |

Late (136-140 days)
- AK10-1 140

Very Late (142+ days)

| | | | |
|---|---|---|---|
| G670-11 | | Ontario | 145 |

Table 8. Yield and and Grade Classification of Potato Cultivar Evaluation at the Muck Crops Branch, Celeryville.

| Cuvtivar | Yield U.S. #1 cwt/A | Percent | | |
|---|---|---|---|---|
| | | U.S. #1 Tubers | B Size | Culls |
| Yukon Gold | 333 | 82 | 3.2 | 13.8 |
| Chipbelle | 331 | 78 | 5.6 | 15.8 |
| Conestoga | 378 | 69 | 13 | 17.3 |
| Monona | 427 | 84 | 2.1 | 13.7 |
| La01-38 | 487 | 77 | 2.3 | 20.2 |
| Belchip | 308 | 77 | 3.0 | 19.1 |
| WIS 779 | 344 | 68 | 2.7 | 28.8 |
| NY 59 | 496 | 82 | 2.7 | 14.7 |
| Bake King | 380 | 83 | 6.8 | 9.7 |
| BR 5991-WV16 | 325 | 79 | 4.8 | 16.0 |
| ND 388-1 | 379 | 81 | 4.2 | 13.8 |
| AF 330-1 | 369 | 76 | 3.3 | 20.5 |
| ND 860-2 | 330 | 85 | 6.9 | 8.0 |
| 521-12-WNC | 289 | 82 | 3.6 | 13.4 |
| Katahdin | 447 | 80 | 4.2 | 14.9 |
| Norchip | 362 | 77 | 4.8 | 17.8 |
| Hampton | 394 | 84 | 2.1 | 13.1 |
| NY 64 | 221 | 435 | 3.7 | 16.4 |
| LSD (0.05) | 71.32 | 12.19 | 5.88 | 7.95 |

Fertilizer: broadcast 860 lbs of 6-24-6/A
Seed Piece Spacing: 12"
Rows: 32" apart. Vine Killer: Dinitro + Diesel oil.

Table 9. Yield, Grade, Specific Gravity, and Chipping Characteristics for the Observation Entries, Wooster, OH - 1985

| | Percent Stand | Total Yield cwt/A | Percent U.S. #1 | Percent B Size | Percent Culls | Specific Gravity | PCSFA | AGTRON |
|---|---|---|---|---|---|---|---|---|
| A71-72-1 | 100 | 409 | 83 | 16 | 1 | 1.076 | 2 | 57.0 |
| ND7003-2 | 93 | 479 | 87.6 | 5.4 | 7 | 1.075 | 2 | 60.6 |
| B9540-62 | 100 | 407 | 86.6 | 7.4 | 6 | 1.077 | 2 | 56.5 |
| G76224 | 87 | 235 | 83.8 | 11.2 | 5 | 1.102 | 3 | 52.5 |
| 7718-2 | - | 382 | 84.8 | 6.2 | 9 | 1.089 | 3 | 41.1 |
| WF31-4 | 83 | 491 | 86.3 | 4.7 | 9 | 1.092 | 1 | 63 |
| B9540-55 | 87 | 368 | 87 | 5.1 | 8 | 1.072 | 2 | 46.9 |
| AF303-5 | 90 | 462 | 89 | 4.4 | 7 | 1.079 | 2 | 61.4 |
| B8943-4 | 70 | 319 | — | --- | - | - | - | - |
| F72217 | 83 | 431 | 91.2 | 2.8 | 6 | 1.080 | 3 | 42.6 |
| A76147-2 | 93 | 828 | 77 | 4.0 | 19 | 1.077 | 3 | 46.8 |
| B9596-2 | 67 | 387 | 86.6 | 2.6 | 7 | 1.079 | 3 | 46.6 |
| CF7523-1 | 90 | 615 | 86 | 5.0 | 9 | 1.083 | 3 | 43.2 |
| NY 64 | 83 | 479 | 90 | 2.0 | 8 | 1.084 | 3 | 51.8 |
| B0042-7 | 100 | 443 | 76 | 6.0 | 18 | 1.086 | 1 | 66.0 |
| B0038-5 | 95 | 368 | 86.8 | 5.2 | 8 | 1.086 | 1 | 67.2 |
| B0036-6 | 100 | 428 | 85.8 | 1.2 | 13 | 1.072 | 1 | 67.7 |
| Red LaSoda (E) | 100 | 515 | 88.6 | 3.4 | 8 | - | - | - |
| Norland | 83 | 366 | 88.4 | 5.6 | 6 | - | - | - |
| D. Red Norland | 87 | 319 | 87.4 | 7.6 | 5 | - | - | - |
| B0045-6 | 87 | 486 | 82.6 | 5.4 | 12 | 1.085 | 2 | 62.0 |
| B0046-14 | 93 | 373 | 78.8 | 10.2 | 11 | 1.080 | 1 | 64.9 |
| B 9792-2B | 97 | 365 | 82.7 | 2.8 | 9 | 1.090 | 1 | 60.7 |
| Chieftan | 97 | 498 | 87.4 | 2.6 | 10 | - | - | - |
| Batouche | 87 | 496 | 96.2 | 2.8 | 1 | - | - | - |
| Viking | 73 | 353 | 89.6 | 0.4 | 10 | - | - | - |
| B9792-153 | 87 | 455 | 76.2 | 0.8 | 23 | 1.082 | 1 | 67.9 |
| B9792-53 | 80 | 448 | 87 | 2.0 | 11 | 1.094 | 1 | 62.5 |
| B9792-8B | 87 | 656 | 67.2 | 3.8 | 29 | 1.095 | 2 | 62.5 |
| Red LaSoda-R | 97 | 620 | 87.2 | 3.8 | 9 | - | - | - |
| Red Sport Viking | 80 | 380 | 93.8 | 0.2 | 6 | - | - | - |
| Red LaSoda-M | 93 | 537 | 89 | 3.0 | 8 | - | - | - |
| B9792-196 | 80 | 450 | 85.8 | 6.2 | 8 | 1.095 | 2 | 58.8 |
| WNC 567-1 | 70 | 407 | 81 | 7.0 | 12 | 1.072 | 3 | 35.3 |
| TC 582-1 | 87 | 402 | 85.8 | 6.2 | 8 | 1.095 | 1 | 56.8 |

Table 9 Continued. Yield, Grade, Specific Gravity, and Chipping Characteristics for the Observation Entries, Wooster, OH - 1985

| | Percent Stand | Total Yield cwt/A | Percent U.S. #1 | Percent B Size | Percent Culls | Specific Gravity | PCSFA | AGTRON |
|---|---|---|---|---|---|---|---|---|
| AC 77513-1 | 87 | 411 | 79.8 | 4.2 | 16 | 1.085 | 3 | 45.8 |
| AC 77652-1 | 87 | 375 | 83.8 | 2.2 | 14 | 1.068 | 3 | 38.0 |
| AF 236-1 | 80 | 552 | 83.6 | 1.4 | 15 | - | - | - |
| Cabrie | 93 | 467 | 88.8 | 1.2 | 10 | 1.074 | 1 | 60.2 |
| Redsen | 80 | 319 | 92.2 | 4.8 | 3 | - | - | - |
| W870 | 67 | 324 | 81.8 | 4.2 | 14 | 1.091 | 1 | 56.7 |
| W856 | 83 | 428 | 84.2 | 2.8 | 13 | 1.084 | 1 | 53.6 |
| W887 | 80 | 288 | 76 | 3.0 | 21 | 1.089 | 1 | 53.7 |
| MS 002-171Y | 100 | 489 | 89.6 | 3.4 | 7 | - | - | - |
| G 701511RY | 87 | 336 | 85.4 | 4.6 | 10 | - | - | - |
| 78-LC-1 | 97 | 353 | 89 | 5.0 | 6 | 1.080 | 3 | 38.6 |
| W906 | 83 | 426 | 81.8 | 2.2 | 16 | 1.094 | 1 | 59.0 |
| W879 | 73 | 332 | 89 | 2.0 | 9 | 1.090 | 1 | 53.0 |
| W742 | 93 | 373 | 91 | 2.0 | 7 | 1.092 | 3 | 46.3 |
| AF 330-1 | 70 | 382 | 83.4 | 1.6 | 15 | 1.083 | 1 | 66.3 |
| CF 7353-1 | 87 | 426 | 90.6 | 0.4 | 9 | 1.079 | 2 | 61.3 |
| OS-005 | 93 | 494 | — | - - | - | 1.085 | 2 | 57.7 |
| A 129.70-3 | 97 | 373 | 86.6 | 1.4 | 12 | 1.072 | 2 | 58.6 |
| BN 9820-3 | 93 | 590 | 80.4 | 1.6 | 18 | 1.070 | 3 | 45.8 |
| BN 9855-2 | 100 | 675 | 85.2 | 0.8 | 14 | 1.068 | 1 | 54.5 |
| ND860-2 | 93 | 416 | 85 | 5.0 | 10 | 1.085 | 1 | 62.8 |
| ND534-4 | 94 | 399 | 89.6 | 7.4 | 3 | 1.075 | 2 | 52.2 |
| ND678-8 | 90 | 409 | 83 | 9.0 | 8 | 1.079 | 1 | 65.7 |
| MS 704-10 | 100 | 450 | 89.4 | 5.6 | 5 | 1.083 | 2 | 58.6 |
| MS 702-80 | 97 | 399 | 86.4 | 2.6 | 11 | 1.078 | 1 | 67.4 |
| BN 9803-1 | 90 | 448 | 87.4 | 3.6 | 9 | 1.082 | 1 | 57.9 |
| MS 702-91 | 83 | 600 | 75 | 1.0 | 24 | 1.074 | 1 | 61.7 |
| MS 700-83 | 87 | 414 | 90.4 | 5.6 | 4 | 1.084 | 1 | 55.9 |
| ND 651-9 | 100 | 416 | 87.6 | 5.4 | 7 | 1.083 | 1 | 61.6 |
| MS 700-79 | 90 | 361 | 89 | 3.0 | 8 | 1.087 | 1 | 62.5 |
| MS 701-22 | 83 | 332 | 90 | 2.0 | 8 | 1.086 | 1 | 56.5 |
| MS716-15 | 100 | 518 | 91 | 2.0 | 7 | 1.085 | 1 | 57.2 |

Campbell Institute for Research and Technology Potato Trials

Procedures:

A. Location- CIRT Research Farm, Napoleon, OH
B. Planting Date: May 16,1985.
C. Harvest Date: September 27, 1985.
D. Experimental Design: Randomized Complete Block.
E. Replications: 4.
F. Row Spacing: 34 inches.
G. In-Row spacing: 10 inches.
H. Plot Size: 1 Row, 20 feet.
I. Fertilizer: Broadcast - 50-100-200
Planting - 30-130-130
Sidedress- 50- 0- 0
J. Disease and Insect Control: Dithane with zinc and Sevin.
K. Herbicide: Dual plus Sencor - preemergence

Table 10. Total and Marketable Yield of Potato Varieties, Napoleon, OH - 1985

| Cultivar | Total Yield (cwt/A) | Percent Marketable (over 1 7/8") | Marketable Yield (cwt/A) |
|---|---|---|---|
| BR 5991-WV16 | 632 | 89.8 | 569 |
| WVC521-12 | 544 | 92.4 | 502 |
| Katahdin | 494 | 94.5 | 467 |
| LA01-38 | 470 | 94.5 | 444 |
| C-14 | 453 | 90.3 | 409 |
| Norchip-5 | 406 | 90.6 | 367 |
| Norchip | 380 | 73.7 | 282 |
| Yukon Gold | 354 | 89.1 | 316 |
| Simcoe | 342 | 84.1 | 289 |
| Conestoga | 285 | 80.7 | 232 |
| ND 388 | 249 | 67.1 | 170 |
| Bayes LSD (0.05) | 85.6 | 6.2 | 85.2 |
| C. V. | 15.2 | 5.4 | 17.3 |

# Northeastern Regional Trial

## Introduction

The Northeastern Regional Potato Variety Trial (Regional Project NE 107) has been in existence for ten years. The trial is a cooperative effort among 13 states in the northeastern part of the United States and Canada. Ohio, West Virginia, and North Carolina are the most southern parts of this region while the northern extremes would be Maine and Canada. This wide area affords an opportunity to evaluate cultivars under many different soil and climatic conditions.

Potato breeders in this region offer certain lines and introductions to the cooperators in each state or province. The cooperators choose the selections for their respective tests.

## Procedure

Twenty-two varieties and selections were evaluated in this NER plot at the Ohio Agricultural Research and Development Center, Wooster, Ohio. Katahdin was included as a standard variety since this variety is commonly grown in Ohio. The other 21 selections were entries from the various breeders.

Plots were single rows, 30 feet long, and were replicated three times in a randomized complete block design. The plot was planted May 15 in excellent soil conditions. The vines were killed (with Diquat) September 3.

The fertility program consisted of 1200 pounds of 10-20-20, one-half applied as a plow-down application and the remainder applied in bands at planting time. Dual/Lexone combination was applied immediately after planting. Fungicides and insecticides were applied as suggested in the pesticide guide from the Ohio Cooperative Extension Service.

Plots were harvested September 16 and 17 and tubers were picked by hand and weighed for a gross yield per plot. A 50-pound sample was taken from each plot for grading into U.S. No. 1, B's, and culls. At grading time (November 1), tubers were also evaluated for internal and external defects. At harvest, a 20-pound sample was collected at random for specific gravity and chipping qualities. This work was done in the pilot plant in the Department of Horticulture, The Ohio State University, Columbus, Ohio, under the supervision of Dr. Winston Bash.

Summary of Results Of North East Potato Clone Evaluation (NE -107)

Total yield, marketable yield greater than 1 7/8", percent defects, specific gravities, plant appearance, and tuber appearance are presented in the accompanying tables. Hampton rated first in U.S. No. 1 tubers (cwt/A). Other yields in order of ranking were: Atlantic, Yankee Supreme, N. Y. 59, and WF 752. The highest percentage of U.S. No. 1 tubers was produced by MN7973 followed by Yukon Gold, Hampton, Katahdin, and Yankee Supreme. Denali had the highest specific gravity at 1.095. Several varieties were found to have similar specific gravities at 1.092 and included W752 and CF1688-9. Atlantic was the next highest.

Kennebec had the greatest percentage of tuber defects mostly attributed to secondary growth and sunburn. Other clones with a high percentage of tuber defects included AF9058M, WF564-15, and NY 59.

Internal Defects: Atlantic had the highest percentage of internal necrosis (60% of sampled tubers). NY 59 which ranked fourth in marketable yield had 40% internal necrosis. Yankee Supreme also had problems with hollow heart.

Table 11. Stand Count, Gross Yield, Percent U. S. No. 1, and Specific Gravity.
Northeastern Regional Trial, Ohio Agricultural Research and Development Center, Wooster, Ohio, 1985.

| Entry | Reps | Stand Count | Total Yield (CWT/A) | U.S. No. 1 (1 7/8", CWT/A) | % U.S. No. 1 | Specific Gravity |
|---|---|---|---|---|---|---|
| N Y 59 | | 97 | 576 | 497 | 86 | 1.078 |
| Sunrise | | 90 | 516 | 460 | 89 | 1.080 |
| CF77154-10 | | 83 | 430 | 366 | 85 | 1.085 |
| Hampton | | 83 | 584 | 535 | 91 | 1.074 |
| Atlantic | | 90 | 611 | 522 | 85 | 1.087 |
| Denali | | 93 | 567 | 474 | 83 | 1.095 |
| AF9058M | | 57 | 457 | 351 | 77 | 1.075 |
| Simcoe | | 90 | 402 | 358 | 89 | - |
| W752 | | 90 | 522 | 453 | 86 | 1.092 |
| Monona | | 93 | 469 | 420 | 89 | 1.076 |
| WF564-3 | | 90 | 600 | 495 | 82 | 1.075 |
| CF7679-15 | | 90 | 500 | 449 | 89 | 1.080 |
| CF7150-1 | | 93 | 383 | 325 | 84 | 1.085 |
| Yankee Supreme | | 87 | 568 | 510 | 89 | 1.090 |
| Yukon Gold | | 87 | 461 | 430 | 93 | 1.086 |
| Yankee Chipper | | 87 | 512 | 437 | 85 | - |
| Norchip | | 90 | 574 | 492 | 85 | 1.082 |
| Kennebec | | 90 | 629 | 473 | 75 | 1.074 |
| Katahdin | | 67 | 419 | 376 | 89 | 1.074 |
| CF1688-9 | | 87 | 505 | 451 | 89 | 1.092 |
| MN7973 | | 87 | 450 | 422 | 93 | 1.070 |
| LSD (0.05) | | | 73.06 | 73.74 | 7.04 | |

# North Central Regional Trial

## Introduction

The North Central Regional Potato Variety Trial (NCR) has been conducted for 35 years. Fourteen states and two Canadian provinces (Alberta and Manitoba) are cooperating in this coordinated trial. Participating plant breeders give tubers of their most promising potato selections to cooperators who, in turn, evaluate these entries in their respective states or provinces. The states go as far south as Louisiana and as far north as Minnesota, North Dakota, and the Canadian provinces mentioned above.

Nearly 40 varieties have been named and released after testing in this well-established program. Dr. Robert H. Johannsen, potato breeder in the Department of Horticulture, North Dakota State University, is the program coordinator. Ohio has been one of the cooperating states for many years.

## Procedure

Twenty-three varieties and selections were evaluated in the NCR plot at the Ohio Agricultural Research and Development Center, Wooster, Ohio. These 23 varieties included Norland, Red Pontiac, Norchip, Russet Burbank, and Norgold Russet as standard varieties.

Plots were single rows, 30 feet long, and were replicated three times in a randomized complete block design except for the three Minnesota selections - MN 10874, MN 11373, and MN 11795 which were in single plots. The plot was planted May 14 and the vines were killed (with Diquat) September 3.

The fertilizer program consisted of 1200 pounds of 10-20-20, one-half applied as a plow-down application and the remainder applied in bands at planting time. Dual/Lexone combination was applied immediately after planting. Fungicides and insecticides were applied during the growing season as suggested in the pesticide guides from the Ohio Cooperative Extension Service.

Plots were harvested September 16 and 17 and tubers were picked by hand and weighed for gross yield per plot. A representation sample - approximately 50 pounds - was taken from each replicate to be graded for U.S. No. 1, B.S., and culls. At grading time, tubers were also evaluated for internal and external defects. At harvest, a 20 pound sample was collected for specific gravity and other chipping characteristics. A maturity rating was made August 25.

Table 12. Gross Yield, Percent U.S. No. 1, Maturity, and Chip Data North Central Regional Trial. Ohio Agricultural Research and Development Center, Wooster, Ohio, 1985

| Selection Number or Variety | | CWT/A Aver. Yield | CWT/A Aver. Yield US #1 | Aver. Percent US #1 | Aver. Total Solids | Gen.[3] Merit Rating | Chip[4] Color | Comments and General Notes |
|---|---|---|---|---|---|---|---|---|
| EARLY TO MEDIUM EARLY | | | | | | | | |
| Norland | 18 | 460 | 400 | 87 | 18.10 | | 58.8 | Good red color |
| MN 11705 | 6 | 388 | 306 | 78 | 19.79 | | 56.4 | Sprouting |
| NE 9.75-1 | 9 | 600 | 520 | 86 | 19.16 | | 51.2 | Internal defects |
| ND 651-9 | 12 | 571 | 494 | 86 | 19.16 | 3 | 62.8 | |
| ND 860-2 | 13 | 471 | 406 | 86 | 20.64 | | 61.1 | Sprouting |
| MEDIUM TO LATE | | | | | | | | |
| La 12-59 | 1 | 640 | 559 | 87 | 20.64 | 2 | 59.8 | |
| La 01-38 | 2 | 580 | 535 | 92 | 20.00 | 1 | 58.1 | |
| MS700-83 | 3 | 512 | 450 | 87 | 18.94 | | 57.2 | |
| MS704-10 | 4 | 477 | 395 | 82 | 21.27 | | 62.3 | |
| MS716-15 | 5 | 526 | 473 | 89 | 21.06 | 5 | 59.2 | Promising |
| G670-11 | 23 | 514 | 438 | 84 | 22.33 | | 53.3 | |
| MN 11816 | 7 | 507 | 423 | 83 | 17.68 | | 56.2 | Elongated |
| MN 11903 | 8 | 488 | 400 | 89 | 18.95 | | 62.0 | Shape problems |
| NE 106 | 10 | 500 | 416 | 83 | 21.06 | | 56.8 | Rhizoctonia |
| BN 9815-3 | 11 | 540 | 478 | 88 | 19.58 | 4 | 57.0 | Promising, attractive |
| ND671-4Russ | 14 | 516 | 442 | 85 | 18.10 | | 53.4 | Promising |
| W 842 | 15 | 439 | 375 | 85 | 24.22 | | 56.0 | Wide size variation |
| W 903 | 16 | 471 | 406 | 86 | 17.89 | | 52.2 | Some greening |
| W 949R | 17 | 475 | 420 | 88 | 18.32 | | 45.8 | Nice |
| Red Pontiac | 19 | 773 | 664 | 85 | 18.10 | | 35.0 | Infected lenticels |
| Russet Burbank | 20 | 598 | 335 | 55 | - | | - | |
| Norgold Russet | 21 | 492 | 435 | 88 | 19.58 | | 23.2 | Uniform russet |
| Norchip | 22 | 495 | 404 | 81 | 20.64 | | 61.0 | 20% sprouting |

3/ Place top five among all entries including check varieties; disregard maturity classification. (Rate first, second, third, fourth, and fifth (in order) for overall worth as a variety).

4/ Chip Color - PCII Color Chart or Agtron

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