# Advancing Varietal Resistance to Soybean Cyst Nematode in Minnesota

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Goal 1: Continue to efficiently produce new SCN-resistant germplasm and varieties and thus expand availability of SCN resistance across all maturity groups grown in Minnesota.

Objective 1: Deploy DNA markers linked to genes conferring SCN resistance to enhance the efficiency and efficacy of breeding for SCN resistance.

Results 1: Each year the UMN Soybean Breeding program deploys molecular markers at the F4 plant stage to more efficiently select for SCN resistance.
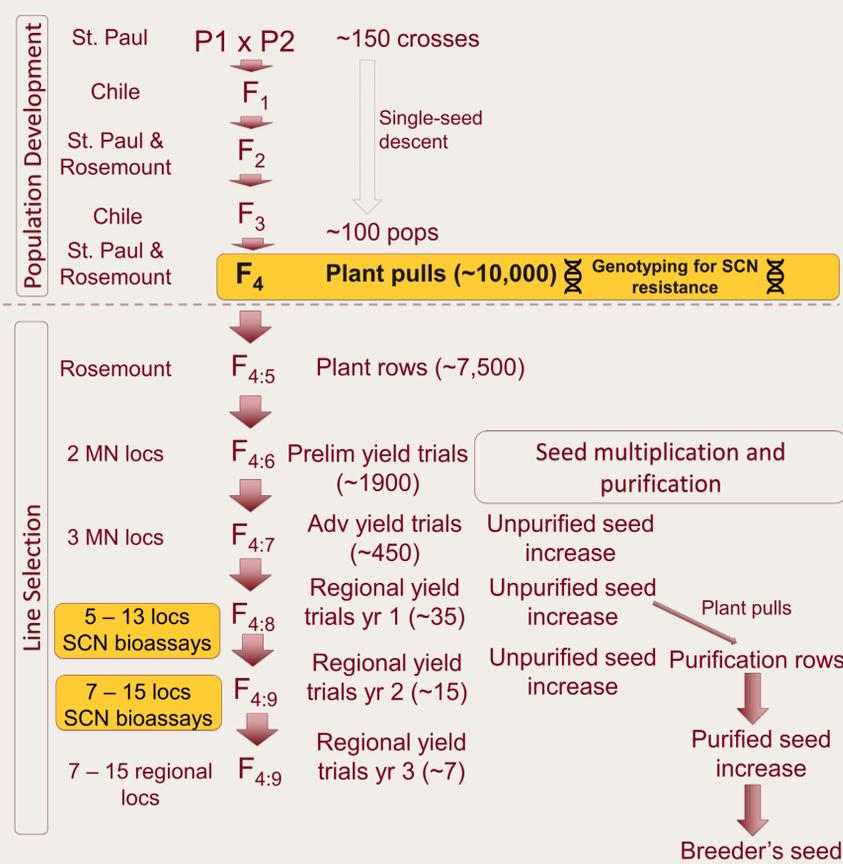


Goal 2: Create elite soybean germplasm with non-88788 sources of SCN resistance so that future soybean growers have more tools in their toolbox to compete with this evolving major pest of soybean.

Objective 2: Advance new sources (non-88788) of SCN resistance and expand the use of these new sources as parents for crossing in the breeding program.

Results 2: The UMN program has hundreds of breeding lines with novel sources of resistance in their pedigrees, including Peking and PI 567516C. This last year, we received approval to make foundation seed of two new Peking-type varieties available. One of these is a MG 0. There is currently only one Peking-type MG 0 soybean variety commercially available.

## Table 1. Basic characteristics of new Peking-type SCN varieties from UMN

| Line name | RM | Hilum | SCN | Phyto |
|---|---|---|---|---|
| M13-250056 | 0.8 | Buff | Peking | *Rps1c* |
| M13-250046 | 1.6 | Buff | Peking | *Rps1c* |

## Table 2. Basic characteristics of new Peking-type SCN varieties from UMN. See handout for more data, details, and performance of M13-250046

| Name (# env) | Yld (13) | Mat. (11) | HG 0 rating | HG 2.5.7 rating |
|---|---|---|---|---|
| MN0811CN | 43.9 | Sept. 23 | High res. | Not res. |
| ND Dickey | 45.9 | Sept. 24 | Not res. | Not res. |
| MN1410 | 43.7 | Sept. 29 | Low res. | Not res. |
| **M13-250056** | **45.7** | **Sept. 25** | **High res.** | **High res.** |
| LSD (0.05) | 3.7 | 1.5 d | | |

Goal 3: Provide an unbiased source of information to growers on the level of SCN resistance in 88788-type commercially available varieties as well as those that have non-88788 sources of resistance.

Objective 3: Conduct SCN bioassays on commercial varieties entering the 2022 UMN Variety Trials using race 3, and conduct bioassays on commercially available non-88788 SCN varieties using races 3 and 14.

Results 3: We screened commercial varieties for resistance to race 3. These results can be found at www.varietytrials.umn.edu/soybean. We solicited non-88788 varieties from commercial companies and screened them for resistance to race 1 and produced an extension bulletin. See handout.

| Provider | Variety | Source of resistance | Relative Maturity | Herbicide trait | Female index | Rating |
|---|---|---|---|---|---|---|
| Control* | Peking | | | | 0.3 | R |
| Control | PI 88788 | | | | 35.8 | MS |
| Syngenta / NK | S23-G5X | PI 89772 | 2.3 | Xtend | 27.1 | MR |
| Syngenta / NK | S26-E3 | Peking | 2.6 | Enlist E3 | 18.3 | MR |
| Mustang Seeds | C-220N | Peking | 2.2 | Conv. | 2.5 | R |
| Albert Lea Seed | 2340KN | Peking | 2.3 | Conv. | 2.0 | R |
| Legend Seed | LGS1452RX | Peking | 1.4 | Xtend | 1.5 | R |
| Cornelius Seed | CB26X78 | Peking | 2.6 | Xtend | 9.0 | R |
| Federal Hybrids | F2290N R2X | Peking | 2.2 | Xtend | 0.2 | R |
| Stine | 25EB32 | Peking | 2.5 | Enlist E3 | 15.1 | MR |