

Parental clones from State Univ., USDA/ARS, and international breeders, potato gene bank and commercial varieties

TAMU Potato Breeding Scheme

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MAS/GS

CX - Crosses

~80 parents - College Station, TX

FS - Full-sib families

College Station
(~30,000 A tubers)

~20,000 B+C seedling tubers
shared with ND, CO, ID

SH - single hills

(~50,000 seedling tubers planted)
Springlake & Dalhart

~20,000 seedling tubers
from ND, CO, ID

Selection rate

1%

4H - 4 hills

(~500 clones - Springlake & Dalhart)

TX

Springlake

TX

Dalhart

20%

EGGS

NCPT/NFPT
Tier 1

in vitro clean up
College Station, TX

20%

NCPT/NFPT
Tier 2, Tier 3

re-testing & increase
San Luis Valley, CO

SWR

TX (2 loc)

SWR

CO (1 loc)

SWR

CA (2 loc)

40%

Snack

Foundation seed
San Luis Valley, CO

WR

TX (2 loc)

WR

WA (2 loc)

WR

OR (2 loc)

WR

ID (2 loc)

WR

CO (2 loc)

WR

CA (2 loc)

50%

Commercial
testing

PVP

Foundation seed
San Luis Valley, CO
CSS, NE

Commercial Variety

Yr. 1 (GH)

Yr. 2 (GH)

Yr. 3

Yr. 4

Yrs. 5-6

Yrs. 7-8

Yrs. 9-10

Yrs. 11-12

Yrs. 13-15

MAS & GS

Scheme of the Texas A&M Potato Breeding Program

Color codes: green (greenhouse), maroon (field), blue (laboratory: molecular, or tissue culture).

- The breeding method used is recurrent phenotypic selection.
- Marker-assisted selection (MAS) and genomic selection (GS) is incorporated to test new parents and selections at field year three for re-entering them into the crossing block.
- Quality evaluations start in year four (second field year).
- Agronomic evaluations start in year five.
- Disease, pest, management, and post-harvest evaluations are done in TX, SWR (SW Regional), and WR (Western Regional) trials.
- Chipping clones are evaluated in EGGS (Early Generation Selection Trials), NCPT (National Chip Processing Trials).
- Promising French fry clones are evaluated in NFPT (National French Fry Processing Trials).
- Later phases involve commercial testing via MTA (Material Transfer Agreement) and PVP (Plant Variety Protection).