

## VARIETAL RENOVATION IN cv. MORDEN

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- \* Productivity of sunflower populations in India is far lower than the world average.**

- ✱ **This is to a large extent due to poor seed quality.**
- ✱ **Maintenance of varietal populations both for seed and oil yield is accomplished through “Method of Reserves” (Pustovoit – 1964).**
- ✱ **Population : Morden**
- ✱ **Being maintained since 1989 to till date.**
- ✱ **Maintenance breeding over the decade since 1992 – 1993 to 2000 – 2001 has been presented.**
- ✱ **Centre : Agricultural Research Station, Bhavanisagar, Tamil Nadu Agricultural University, Tamilnadu, INDIA.**

✱ **Characters considered for selection.**

✱ **Plant height (cm)**

✱ **Head diameter (cm)**

✱ **Seed yield / head (g)**

✱ **Oil content (%)**



## Variety : Morden

### Maintenance of Plant height (cm) over the years

|                   |         | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-------------------|---------|------|------|------|------|------|------|------|------|------|
| Sample size (No.) |         | 2010 | 1850 | 2200 | 1800 | 2110 | 1300 | 2400 | 3150 | 3080 |
| Plant height (cm) | Minimum | 62.5 | 60.0 | 63.2 | 64.7 | 63.4 | 69.5 | 61.8 | 61.5 | 62.8 |
|                   | Maximum | 81.4 | 90.0 | 86.3 | 90.5 | 85.0 | 86.6 | 83.7 | 87.3 | 84.1 |
|                   | Mean    | 75.7 | 74.6 | 73.8 | 76.7 | 75.1 | 73.6 | 74.9 | 72.6 | 74.8 |

- Note :
- \* Variability of the population is maintained.
  - \* Mean height of the population is maintained.

## Variety : Morden

### Maintenance of Head diameter (cm) over the years

|                    |         | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|--------------------|---------|------|------|------|------|------|------|------|------|------|
| Sample size (No.)  |         | 2010 | 1850 | 2200 | 1800 | 2110 | 1300 | 2400 | 3150 | 3080 |
| Head diameter (cm) | Minimum | 11.7 | 15.3 | 12.9 | 13.2 | 14.9 | 15.1 | 14.9 | 15.6 | 16.2 |
|                    | Maximum | 20.0 | 22.8 | 18.2 | 19.7 | 19.0 | 17.4 | 17.8 | 20.2 | 21.5 |
|                    | Mean    | 17.3 | 17.4 | 15.9 | 16.2 | 17.1 | 16.2 | 15.8 | 18.0 | 18.4 |

- Note :
- \* Minimum value for the range is increased.
  - \* Variability narrowed.
  - \* Mean diameter of the population is maintained.

## Variety : Morden

### Maintenance of Seed yield / plant (g) over the years

|                           |         | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---------------------------|---------|------|------|------|------|------|------|------|------|------|
| Sample size (No.)         |         | 2010 | 1850 | 2200 | 1800 | 2110 | 1300 | 2400 | 3150 | 3080 |
| Seed yield /<br>plant (g) | Minimum | 13.9 | 15.4 | 29.3 | 34.2 | 38.4 | 39.1 | 37.6 | 39.5 | 38.6 |
|                           | Maximum | 70.4 | 79.1 | 65.9 | 76.3 | 77.7 | 75.2 | 74.2 | 78.6 | 80.5 |
|                           | Mean    | 37.4 | 40.6 | 48.4 | 50.7 | 50.5 | 50.3 | 52.0 | 53.3 | 57.5 |

- Note :
- \* Range is narrowed and shifted to +ve direction
  - \* Minimum for the range is increased.
  - \* Mean seed yield of the population increased to 1½ times.

## Variety : Morden

### Maintenance of Oil content (%) over the years

|                   |         | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|-------------------|---------|------|------|------|------|------|------|------|------|------|
| Sample size (No.) |         | 2010 | 1850 | 2200 | 1800 | 2110 | 1300 | 2400 | 3150 | 3080 |
| Oil content (%)   | Minimum | 24.0 | 23.7 | 31.5 | 32.7 | 33.4 | 34.2 | 35.2 | 35.7 | 37.3 |
|                   | Maximum | 45.3 | 39.1 | 39.3 | 43.2 | 44.3 | 45.0 | 45.5 | 45.6 | 48.2 |
|                   | Mean    | 34.6 | 32.7 | 34.8 | 39.9 | 38.8 | 39.3 | 40.1 | 40.8 | 41.7 |

- Note :
- \* Low oil content lines got eliminated.
  - \* Minimum value for the range is increased.
  - \* Maximum value for the range is maintained.
  - \* Variability narrowed.
  - \* Mean oil content increased.



## Character maintenance at a glance

| <b>Character</b>                | <b>During the year</b> |             |                    |             |
|---------------------------------|------------------------|-------------|--------------------|-------------|
|                                 | <b>1993</b>            |             | <b>2001</b>        |             |
|                                 | <b>Range</b>           | <b>Mean</b> | <b>Range</b>       | <b>Mean</b> |
| <b>1. Plant height (cm)</b>     | <b>62.5-81.4</b>       | <b>75.7</b> | <b>62.8 - 84.1</b> | <b>74.8</b> |
| <b>2. Head diameter (cm)</b>    | <b>11.7-20.0</b>       | <b>17.3</b> | <b>16.2 - 21.5</b> | <b>18.4</b> |
| <b>3. Seed yield / head (g)</b> | <b>13.9-70.4</b>       | <b>37.4</b> | <b>38.6 - 80.5</b> | <b>57.5</b> |
| <b>4. Oil content (%)</b>       | <b>24.0-45.3</b>       | <b>34.6</b> | <b>37.8 - 48.2</b> | <b>41.2</b> |