AVRDC
The World Vegetable Center
Genetic Resources and Seed Unit (GRSU)

AVRDC-GRSU CHARACTERIZATION RECORD SHEET

Crop:	***Macrotyloma* spp.**		
Plot No. :	_____	Accession No. :	_____
Sowing Date:	_____	Name:	_____
Transplanting Date:	_____	Species:	_____
Location:	_____	Origin:	_____

VEGETATIVE DATA

Mac01 Emerging cotyledon color _____
1 = White 2 = Green 3 = Purple

Mac02 Hypocotyl color _____
1 = Green 2 = Purple

Mac03 Main stem pigmentation (at 4- 6 weeks after planting) _____
0 = No pigmentation 3 = Localized to nodes
5 = Extensive 7 = Almost solid

Mac04 Clear markings along veins of fully developed primary leaves _____
0 = Absent 3 = Narrow 7 = Wide

Mac05 Vein color of fully developed primary leaves (on inner face) _____
1 = Green 2 = Purple

Mac06 Leaf anthocyanin _____
0 = Absent + = Present

Mac07 Leaf color intensity (4- 6 weeks after planting) _____
3 = Pale green 5 = Intermediate green 7 = Dark green

Mac08 Leaf hairiness (density; on inner surface of first fully expanded leaves from tip) _____
0 = Glabrous 3 = Slightly pubescent
5 = Moderately pubescent 7 = Highly pubescent

Mac09 Ramification index (if determinate type - 6 weeks after planting) _____
3 = Long internodes on main stems, few lateral branches, type Fordhook
5 = Intermediate
7 = Short internodes on main stems, numerous lateral branches, type Henderson

Mac10 Branch orientation (if determinate type - see Figure 1.) _____

3 = Short and erect lateral branches
5 = Branches tending to be perpendicular to main stem, medium in length
7 = First lateral branches long and spreading over ground

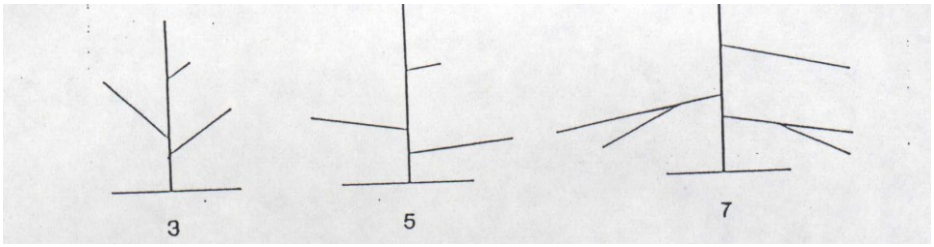

Figure 1. Branch orientation.

Mac11 Ramification index (if indeterminate type - 6 weeks after planting) _____

1 = One main stem, none or few short lateral branches
3 = One main stem, few lateral branches starting from the first nodes
5 = Two or three main stems starting from the first nodes
7 = Two or three main stems and other lateral branches
9 = Densely branched

Mac12 Length from hypocotyl base to fully expanded _____
(primary leaves - 10 random plants in cm)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac13 Plant height _____
(if determinate type; in cm, on 10 random, mature plants, from cotyledon scar to tip of plant)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac14 Leaf persistence (when 90% of pods are ripe) _____

3 = Few leaves remaining
5 = Intermediate
7 = Most leaves remaining

Mac15 Growth habit _____

1 = Determinate bush 2 = Intermediate semi-climber
3 = Indeterminate climber 4 = Other (specify) _____

Mac16 Leaflet length _____
(measured on the terminal leaflet of third trifoliate leaf from pulvinus to leaf tip)
3 = 5-7 cm 5 = 9-11 cm 7 = 13-15 cm

Mac17 Leaflet shape _____

(measured on the terminal leaflet of third trifoliate leaf according to the ratio of length (l) to width (w). See Figure 2.)

	l/w
1 = Round	1.5
3 = Ovate	1.5-2
5 = Ovate-lanceolate	2.3
7 = Lanceolate	3-6
9 = Linear-lanceolate	6

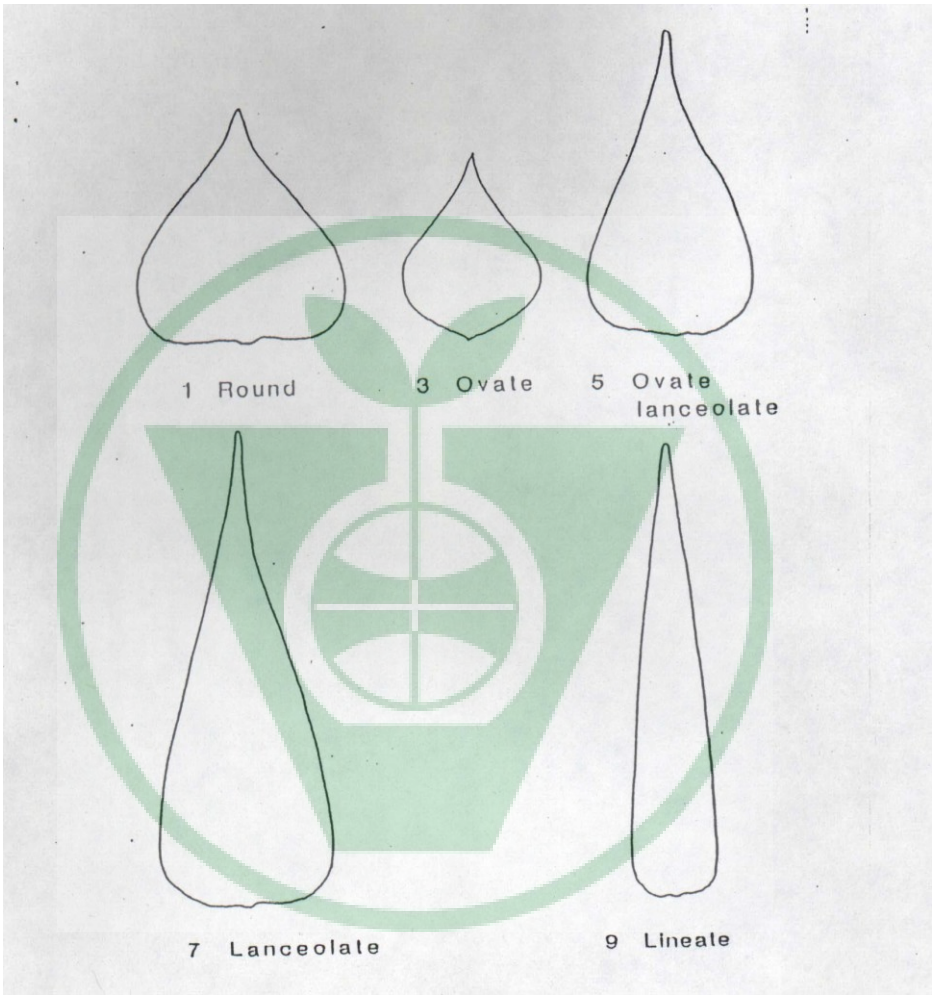

Figure 2. Leaf shape.

Mac18 Days to maturity (from emergence to stage when 90% of pods are ripe) _____

INFLORESCENCE & FRUIT DATA

Mac19 Number of nodes on main stem before first raceme _____

(Average from 10 random plants: if determinate type, from cotyledon scar to last leaf; if indeterminate type, from cotyledon scar to first flowering node.)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac20 Days to flowering _____

(from emergence to stage when 50% of plants have begun to flower)

Mac21 Flower bud size (just before opening, see Figure 3.) _____

3 = Small (3.6-4.5) 5 = Medium (5.6-6.5) 7 = Large (7.6-8.5)

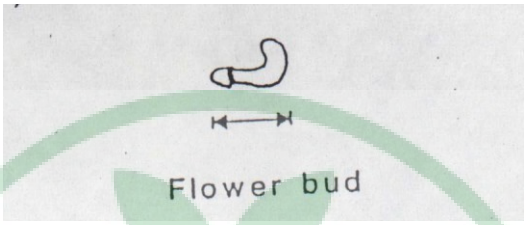

Figure 3. Flower bud size.

Mac22 Color of flower keel (color of tip) _____

1 = Greenish 2 = Tinged (pink or purple)

Mac23 Color of flower standard (upper part of inner side) _____

1 = White 3 = Light pink 5 = Deep pink to purple 7 = Violet

Mac24 Color of flower wings _____

1 = White 3 = Light pink 5 = Deep pink to purple 7 = Violet

Mac25 Hairiness of standard (outer face of freshly opened flower) _____

0 = Absent 3 = Sparsely hairy on tip
5 = Moderately hairy 7 = Densely hairy all over

Mac26 Wing opening (freshly opened flower) _____

0 = Parallel wings; closed 3 = Intermediate opening
7 = Wings widely diverging

Mac27 Number of nodes per raceme _____

(One raceme from each of 10 plants at pod filling period; if determinate type, one terminal raceme; if indeterminate type, one lateral raceme - 6th from apex.)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac28 Raceme length _____

(In cm, one raceme from each of 10 plants at pod filling period; if determinate type, one terminal raceme; if indeterminate type, one lateral raceme - 6th from apex.)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac29 Raceme position (at fully expanded green pod stage) _____

3 = Within foliage 5 = Intermediate
7 = Emerging from leaf canopy

Mac30 Duration of flowering _____

(from first flowers to stage where 50% of plants have finished flowering)

Mac31 Pod curvature (of fully expanded immature pod, see Figure 4.) _____

0 = Straight 3 = Slightly curved 7 = Curved

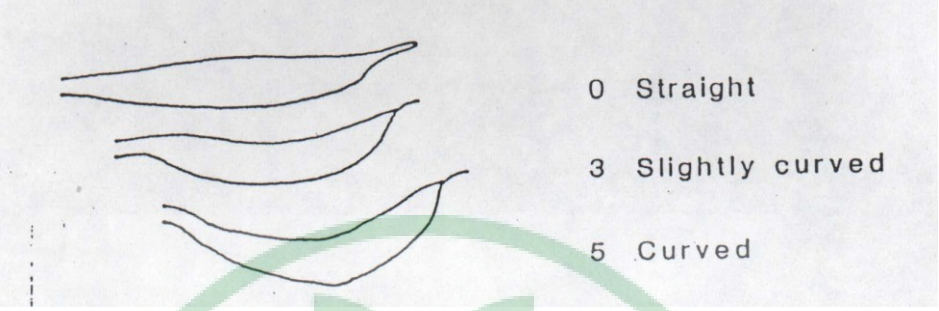

Figure 4. Pod curvature.

Mac32 Pod pubescence (on fully expanded immature pods) _____

0 = Glabrous + = Pubescent

Mac33 Pod beak shape (on fully expanded immature pods, see Figure 5.) _____

1 = Short beak 2 = Medium length beak
3 = Long beak 4 = Thick beak

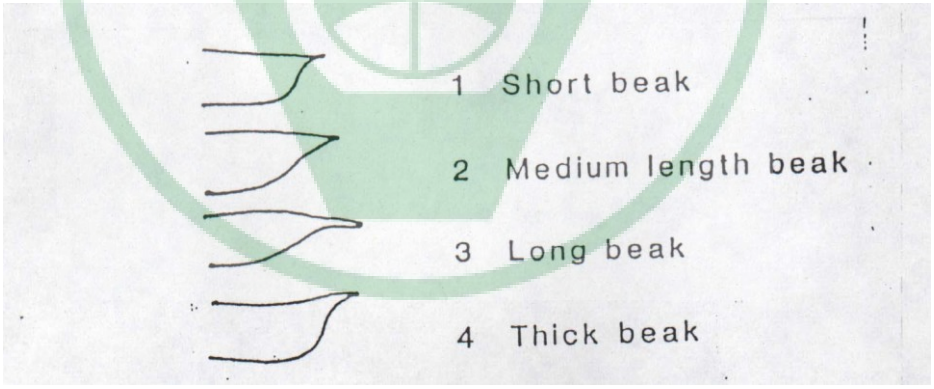

Figure 5. Pod beak shape.

Mac34 Position of pod bearing racemes _____

1 = Mainly concentrated at the base
2 = Mainly concentrated in the middle
3 = Mainly concentrated at the top
4 = Evenly distributed throughout the plant
5 = Variably distributed

Mac35 Orientation of pod bearing racemes (at maturity) _____

1 = Upright 2 = Prostrate

Mac36 Pod dehiscence (at maturity) _____

0 = Non- shattering + = Shattering

Mac37 Days to first mature pod _____

(from emergence to stage when 50% of plants have mature pods)

Mac38 Pod color (of mature pods) _____

1 = Light green 2 = Green
3 = Green with purple suture 4 = Purple

Mac39 Pod length _____

(In cm, average of 10 randomly chosen mature pods. If pods are curved, measure the longest straight line from base to tip of pods.)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac40 Pod width _____

(In cm, of the largest width from 10 randomly chosen, mature pods)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac41 Number of locules per pod _____

(ovule attachment on 10 randomly chosen pods)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

SEED DATA

Mac42 Number of seeds per pod _____

(average from 10 randomly chosen ripe pods)

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac43 Seed germination within pods (radicle emergence) _____

0 = Absent + = Present

Mac44 Splitting of seed testa _____

0 = Absent + = Present

Mac45 Texture of seed testa _____

(transverse ridges may exist radiating from the hilum to the opposite edge of seed)

3 = Smooth 5 = Moderately ridged 7 = Markedly ridged

Mac46 Cotyledon color (of ripe seeds) _____

1 = White 2 = Green 3 = Brown 4 = Purple 5 = Black

Mac47 Background color (the lightest color) _____

1 = White 2 = Grey 3 = Yellow
4 = Buff 5 = Light brown 6 = Black

Mac48 Pattern color _____

(Eye always included: if bicolored pattern consider only the lightest color of the pattern.)

0 = No pattern 1 = Light brown 2 = Dark brown 3 = Black

Mac49 Shape of seed (Seed taken from middle of pod, see Figure 6.) _____

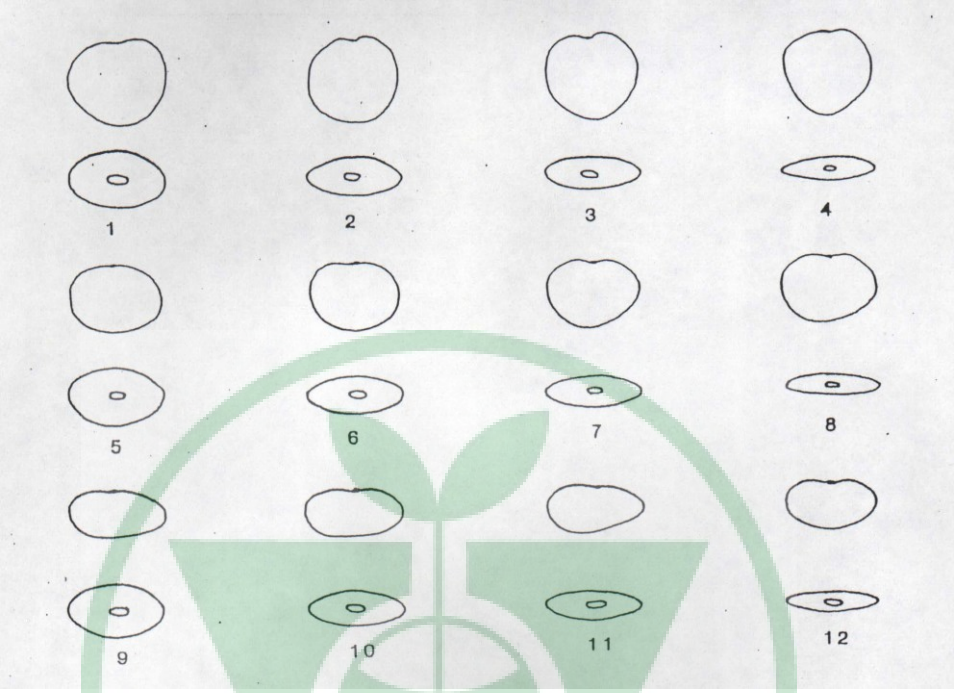

Figure 6. Shape of seed.

Mac50 Seed length (In mm, average of 10 ripe seeds chosen at random) _____

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac51 Seed width (In mm, average of 10 ripe seeds chosen at random) _____

_____ _____ _____ _____ _____ _____ _____ _____ _____ _____

Mac52 Seed weight (weight of 100 seeds in mg, moisture content 12-14%) _____

PEST AND DISEASE SUSCEPTIBILITY

In each case, it is important to state the origin of the infection or infestation, i.e. natural, field inoculation, laboratory test (specify). Record such information in the NOTES descriptor.

These are coded on a 1-9 scale, where

3 = Low susceptibility

5 = Medium susceptibility

7 = High susceptibility

PEST

Record the name of the pest infecting the plant, if possible determine the species of the pest. Use the rating scale stated above.

DISEASES

Record the name of the disease, causal organism (genus and species). Use the rating scale stated above.

Fungi

Bacteria

Virus and mycoplasma

Nematode