VICARP R & D INFORMATION SHEETS

STEPS IN SUCCESSFUL HYBRID CORN CULTURE

(MAISAGANA PROGRAM 5-TON PACKAGE TECHNOLOGY)

1. Securing the Hybrid to Plant (20 days before planting)

Use only Philippine Seed Board recommended hybrids. Approximately 20 kg of seeds is needed to plant a hectare. (See approved 1 for the list of recommended hybrids)

Note: Always buy new batch of seeds (F_1 seeds) for each planting. Do not save seeds (F_2 seeds) from your harvest. Seeds from harvest (F_2 seeds) will reduce yield by as much as 30-40 percent and will not produce uniform and vigorous plants due to breakdown of genetic traits.

2. Soil Testing

Since acidic soils greatly affect yield, soil testing should be done to determine soil pH. If the soil pH is less than 5.3, liming should be done to correct the pH. Depending on the type of soil, $CaCO_3$ should be applied at the rate of 0.4 to 1.2 tons per 0.1 pH. Liming should be done 30 days before planting to allow it to react and reduce acidity. One half ($^1/_2$) of the required amount is broadcasted and harrowed in.

Note: For specific fertilizer recommendations, have soil analyzed by DA Soil Laboratory.

3. Land Preparation (30 days before planting)

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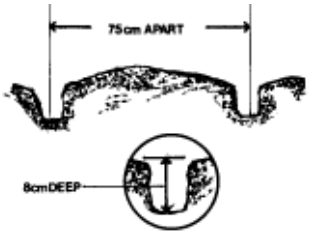
A thorough land preparation provides a good medium for plant growth. It also minimizes weed problems. Prepare the land thoroughly by plowing once or 2 times followed by harrowing 2 or 3 times.

4. Preparation of the Furrows (1 day before planting or during)

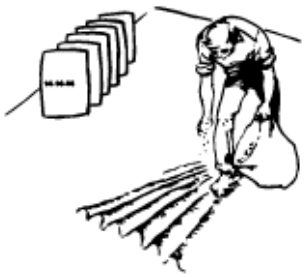
Make furrows at 75 cm spacing and 8 cm depth.



5. Application of Basal Fertilizer (day of planting)

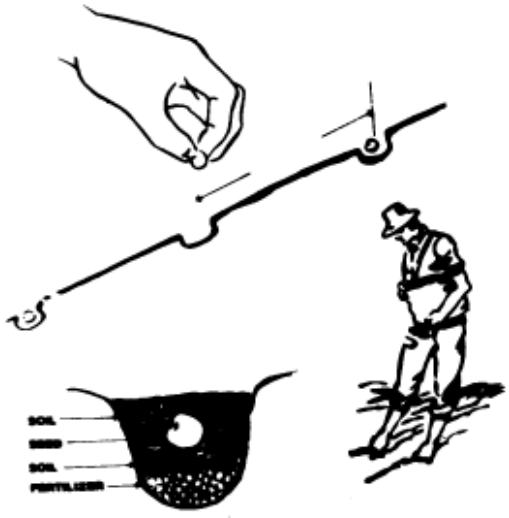
Apply basal fertilizer in the furrows at the rate equivalent to 6 bags of complete fertilizer (14-14-14) per hectare. This provides 42 kg each of nitrogen (N), Phosphorus (P_2O_5) and potassium (K_2O) per hectare. Cover fertilizer with a thin layer of soil about 2 cm thick.

NOTE: Do not allow fertilizer to get in contact with seed.



6. Planting (day of planting)

For the recommended hybrids, refer to your dealer or production technologist for the specific plant density requirement per hectare. Generally, the seed companies recommend one (1) seed per hill 20-25 cm apart. For hybrids with no genetic resistance to downy mildew, make sure that the seeds are treated with Apron 35 SD.



7. First Insecticide Application (just after planting to 10 days after planting)

To control seedling maggots, white grubs and other early insect pests, apply immediately after planting one (1) bag of carbofuran (basal) per hectare to the soil or spray the young corn plants with Endodulfan or Methomyl at the rate of 2-3 tbsp/gals of water.

8. Herbicide Application (just after planting)

If weeds are expected to be a problem and could not be controlled manually, Atrazine at 3 kg a.i. per hectare or Pendimethalin at 1.5 kg a.i. per hectare may be applied immediately after planting or before seedling emergence.

Caution: Emerging corn seedlings should not come in contact with Pendimethalin.

9. Cultivation and Weed Control (12 days after planting)

Undertake shallow cultivation and spot weeding with cultivator 12 days after planting to control weeds. To further control weeds, another shallow cultivation and spot weeding may be done 20 days after planting or spray 2-4 D Amine or MCPA to control broadleaves and sedges at the rate of 1 liter per hectare.

Caution: Minimize herbicide contact with corn plants.

10. Sidedressing of Fertilizer (25-30 days after planting)

25-30 days after planting, sidedress with 6 bags of ammonium sulfate or 3 bags of urea. This provides about 50-67 kg of nitrogen (N) per hectare. Cove fertilizer immediately with soil by doing shallow hilling up. Avoid root injury.

11. Second Insecticide Application (whorling stage)

At whorling stage, it might be more practical to have an ocular inspection of the crop. If 40% of the acorn plant show leaf injuries, it is wise to have the second insecticide application. Apply carbofuran to the whorl at the rate of 1 bag per hectare, or instead the following can be sprayed to control corn borers, cutworms or earworms, Endosulfan or Methomyl at the rate of 1 liter per hectare or 3-4 tbsp/5 gals of water.

12. Third Insecticide Application (tasseling stage)

To reduce production costs without endangering the corn crop, the detasseling technique is recommended. Immediately after the tassel emerges, detassel the first 3 rows and leave the fourth row with tassels. The same pattern should be followed in the succeeding sets of 4 rows. Detasseling can be done by pulling out the emerging tassels or breaking off fully emerged tassels. However, detasseling should be done before pollen seeding and care should be taken no to damage the flagleaf. If corn borer infestation persists or when larvae is more than 100 larvae/100 tassels, spray only the plants with tassels with any of the insecticides recommended at whorl stage.

13. Harvesting (100-105 days after planting)

The corn crop is ready for harvest 100 days after planting during the rainy season and 105 days after planting in the dry season. As a guide, corn is ready for harvest upon black layer formation and when the corn kernels are glazed.

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14. Post Harvest Practices

1. Store in a cool and dry place.

2. Dry corn to about 14% moisture content.

ACCREDITED VARIETIES/HYBRIDS IN THE MAISAGANA PROGRAM (1984 PHASE A)

HYBRID/VARIETIES	GRAIN TYPE	GRAIN YIELD[1] (tons/ha)	MATURITY (days)	REACTION TO[2] CORN BORER	DOWNY MILDEW	PHIL SEED BOARD APPROVAL
Improved Varieties						
Phil. DMR Comp 2	White	3.8	95-100	S	R	Approved
MIT Var 2	White	3.2	95-100	S	R	Approved
Improved Tiniguib	White	3.2	95-100	S	R	Approved
Ginintuan (IPB Var I)	Yellow Orange Flint	5.7	100	MS	R	Approved
Hybrids						
Cargill CS 711	Yellow Flint	5.7	100-105	3	3	Provisional
Cargill SX 747	Yellow flint	5.7	100-105	MS	TR	Provisional
HyCorn 9	Yellow Flint	5.7	95-100	S	TR	Approved
Pioneer 6181	Yellow Flint	5.7	95-100	S	R	Approved
Pioneer XCG 33	White Flint	6.3	95-100	S	R	Provisional
SMC Hi-Yield 102	White Flint	5.2	95-100	S	R & TR	Approved
SMC Hi-Yield 305	Yellow Flint	6.8	107-112	3	3	Provisional
SMC HI-Yield 301	Yellow Flint	6.2	105-110	MR	R & TR	Provisional

[1] Mean of at least 12 trials in different locations for two seasons (wet and dry) as tested by the Upland Crops National Cooperative Trials in cooperation with the Philippine Seed Board.

[2] Reaction Level: S - susceptible; MS- moderately susceptible; MR- Moderately Resistant; R - Resistant; and TR- Treated with Apron 35 SD. Rating for reaction to corn was based on one-season test using artificial infestation.

[3] Recommended crop protection measures to be strictly observed in the absence of adequate data.

Maisagana Control Guide for Destructive Insects of Field Corn. 1984 (Philippines)

Target Insect	Application Time/Growth Stage	Common Name	Typical Brand Name	Application Rate Kg or L ai/ha	Tbs/5 gals	Remarks
General	Plant early					To avoid high insect infestation.
White grubs Corn Seedling Maggots	At planting (Basal)	Carbofuran	Furadan 3G	0.5		1. In places where these pests occur apply in hills below seeds during planting time. The application will also control cutworms, semi-loopers and early generation borers.
	1-3 wks after planting (seedling)	Endosulfan	Thiodan EC	1.0	3-5	2. In places that these insects are not always present, apply:
			Endox EC	1.0	3-5	a: as spray if seedling show symptom of deadheart 3-5 days after emergence. Control is good for 1-2 weeks only. Re-apply if necessary; or
		Methomyl	Lannate	1.0	6-10	
		Chlorpyrifos + BPMC	Brodan SCW 200	1.0	3-6	b: granules in hills
Corn Borer	Whorl Stage[a]	Carbofuran	Furadan 3G			1. Presence of pinhead, matchsize or shot holes indicate feeding of larvae. Apply insecticides if there are more than 100 larvae/100 plants or 40% of the plant show leaf injuries.
		Endosulfan	Thiodan EC	1.0	3-5	
			Endox EC	1.0	3-5	
		Methomyl	Lannate EC	1.0	6-10	a: Apply granules directly at the whorl.
		Monocrotophos	Azodrin 202 EC	0.5	3-5	b: Apply spray directed at the whorl.
		Monocrotophos	Nuvacron	0.5	3-5	2. Monitor when to apply at whorl. In most cases, there are more larvae at mid to whorl than early whorl.
		+ BPMC	Brodan EC	1	3-6	
		Carbaryl	Sevin 85 WP	2	6-10	
Corn Borer Corn Earworm	Tasseling Stage	Detassel Before Pollen Shedding				1. Detassel 75% of the corn plants that are three rows of every four rows (3:1). When one-half to three fourths of the tassel has emerged the corn plant is ready for detasseling. Detasseling is done by pulling out the tassel or by cutting at the base of the peduncle. Feed the young tassel for livestock or burn them. 2. If there are more than 100 larvae/100 tassels spray all the plants with intact tassels with any of the recommended insecticides at the whorl stage. 3. In places where predator (earwig, spider) population is high, there is no need to spray.

[a] The days after planting will vary with the composite or hybrid.

Source: Agricultural Information Division (AID)
Ministry of Agriculture and Food (MAF)
Elliptical Road, Diliman, Quezon City