

**INDIRA KRANTI PATHAM**  
**Society for Elimination of Rural Poverty**

**Community Managed Sustainable Agriculture**  
**(Supported by farmers and women's groups and**  
**N.G.Os)**



## PADDY

### Pest and Disease management:

#### Non – Negotiables for Paddy:

- **Deep summer ploughing:** Summer ploughing exposes the pupae surviving inside the soil. Depth of ploughing should be more than 6 inches. Exposed pupae will die due to excess heat (or) eaten away by birds
- **Seed treatment:**
  - A. Take 2 lts. of Cow urine, 1 kg of cow dung and 1kg of live soil (putta matti) mix thoroughly with seeds and dry in shade for 1 hour, later these seeds can be sown in nursery bed
  - B. Dip the paddy seedlings in solution consists of 2 lts of cow urine, 1 kg. of cow dung, 1 kg of soil, 105 gms of Acetofida and 10 lts. Water
- **Clipping of the tips:** Cut seedling tips while transplanting into the main field. This will prevent Stem borer attack as Stem borer lays eggs on the tips of the leaves.
- **Alleys:** Leaving 1 feet path at every 3 mts interval in East –West direction will avoid attack of Hoppers.
- **White and Yellow sticky traps:** Arrange 15-20 Yellow and White sticky traps per acre. Green leaf hoppers and thrips stick to these traps. Clean these traps once in two days and add sticky material to traps for effective trapping. Height of these traps should be the same with the plant height.
- **Bird perches:** Arrange 10-15 bird perches per acre immediately after transplanting and remove these at grain filling stage (60 days after transplanting). Bird perches will attract birds and birds will eat pests. Broad costing of yellow rice will attract more birds. Height of bird perches should be more than the height of plants.
- **Pheromone traps:** Keeping 5-10 Pheromone traps in zigzag way to mass trapping of Stem borers. Lure has to be changed once in a month or after the expiry date
- **Application of Botanical extracts:** If all the above mentioned principles are followed religiously, there will not be any need to apply botanical extracts. However list of pests and botanical extracts

### **Non – Negotiables in Disease Management:**

- **Selection of Seed:** Seed should be free from diseases and should select resistant varieties
- **Incorporating weeds:** Weeds and other voluntary plants should incorporate into soil
- **Reduce/no chemical fertilizer usage:** Reduce (or) avoid chemical fertilizers to prevent diseases
- **Crop rotation:** Rotate crops particularly with pulses to prevent disease spread
- Avoid application of Nitrogenous fertilizer during cloudy days
- **Alleys:** Alleys provide enough sunlight and wind flow and prevent disease spread

### **Non – Pesticide Management in Paddy:**

- **Rodent control:**
  - A. Use Rodent traps – 5-10 per acre
  - B. Keep Papaya peaces all-around the field – four Papayas are sufficient for one acre
  - C. Rodent repellent crops such as Calotropis, Turmeric, Castor plants which are rodent repellants
  - D. Keep mix of Cement and Wheat or any other flour at rat holes
- **Sucking pests:** Sucking pests such as Green leaf hopper, Thrips, Gall midge and Gundhi bug, can be effectively controlled by spray Neemasthram (or) spray 5 % NSKE solution (5 kg neem cake in 100 lts. Water) 2 times with 7 days interval.
- **Stem borer (white ear heads):** Spray 5 % NSKE solution (or) Neemasthram 2 times with 7 days interval. After stem borer attack spray 3 lts. Of Agniasthram in 100 lts. of water Per acre. Add 2 quintals *Holarrhena pubescens* (conessi) leaf in final ploughing. Addition of orange fruit skin to soil also control this pest
- **Leaf folder:** Pull thorny bush on crop, so that folded leaf can get unfolded, spray Neemasthram 2 times with 7days interval on the folded leaf

- **Brown plant hopper:** Spray 1-2 lts. Neem oil or broad cast Neemasthram with 20 kg sand per acre. Water level in the field should not cross ½ inch.
- **Rice Gundhi bug:** Collect 200-300 gundhi bugs during morning time grind and filter in 100 lts. Water and spray.
- **Cut worm:** For managing Cutworm, spray Chilli and Garlic extract or 3 lts. of Brahmasthram with 100 lts. Water.
- For managing Hispa spray 5 % NSKE solution or Neemasthram 2 times with 7 days interval.
- **Paddy blast:** Blast causes spindle shape spots and damages leaves and neck of the panicle, as a precautionary measure spray cow dung & cow urine and Acetofida solution or Neemasthram or 6 lts. Fermented buttermilk with 100 lts. Water per acre.
- **Bacterial leaf blight:** Due to Bacterial leaf blight, leaf dries from top to bottom and in the field plants dry in groups. As a precautionary measure spray cow dung & cow urine and Acetofida solution, after occurrence of disease spray Neemasthram.
- **Paddy sheath blight:** Due to Sheath blight long spots appear on the plant, as a precautionary measure spray cow dung & cow urine and Acetofida solution, after occurrence of disease spray Neemasthram.
- **Stem rot:** Due to stem rot leaves become into yellow colour and number of tillers reduces, and the plant get break at stem portion .black spots appear on the leaf sheath, inter nodes also get rotten. As a precautionary measure spray cow dung & cow urine and Inguva solution, after occurrence of disease spray Neemasthram.
- **Sheath rot:** Sheath rot causes spots on boot leaf and damages, so panicle gets rotten so panicle initiation does not take place. As a precautionary measure spray cow dung & cow urine and Acetofida solution, after occurrence of disease spray Neemasthram.
- **Rice tungro virus:** Due to Tungro virus plants become stunted, reduce tiller number, tips of the leaves get dried, panicle doesn't appear, small ear heads appear, chaffy grains form. This disease is transmitted by green leaf hoppers, for managing GLH arrange yellow sticky traps 15-20 per care and ensure that trap is having sticky material. Spray Neemasthram or 5 % NSKE solution 2 times with 7 days interval. For managing virus spray 6 lts. Raw milk with 100 lts. Water.

### **Nutrient Management:**

- **Penning with Sheep (or) Cattle:** Penning with Sheep (or) cattle will improve soil fertility. During Summer, penning of sheep and cattle in the whole night is a general practice
- **Tank silt application:** Application of tank silt will improve soil fertility and water holding capacity
- **Application Farm Yard Manure (FYM):** Application of 6 tones of completely decomposed FYM per acre will improve soil fertility.
- **Green manure crops:** Green manure crops will improve soil structure and organic matter content. After reaching flowering stage incorporate green manure crops into soil.
- **Application of Azolla:** Add Azolla to paddy field it fixes atmospheric nitrogen, an average half of the nitrogen fertilizer application can be reduced
- **Micronutrient deficiency:** For nutrient deficiency (Iron, Zinc and Potash) in nursery and in main field spray cow urine and cow dung and Acetofida solution.

## **RED GRAM**

### **Non- Negotiables for Red gram:**

- **Deep summer ploughing:** Summer ploughing exposes the pupae surviving inside the soil. Depth of ploughing should be more than 6 inches. Exposed pupae will die due to excess heat (or) eaten away by birds
- **Community bonfires:** Immediately after the first shower (one inch rain fall) mass bonfires in the fields attract adults of Red hairy caterpillars particularly
- **Growing of Trap crops:** Grow yellow flower Marigold (tall growing plants are preferred) and Castor around field, ensure flowering before main crop completes vegetative stage
- **Border crop:** Sow 3 rows of tall growing Jowar or Bajra or Maize (without any gap in the row). This will provide enabling environment for friendly insects and it also prevents

- **Seed treatment:** Take ½ lt. of Cow urine, 250 gms of cow dung and 250 gms. of living Soil (putta matti) mix thoroughly and mix to 5-6 kg seeds, after thorough mixing dry in shade
- **White and Yellow sticky traps:** Arrange 15-20 Yellow and White sticky traps per acre. Green leaf hoppers and thrips stick to these traps. Clean these traps once in two days and add sticky material to traps for effective trapping. Height of these traps should be the same with the plant height.
- **Bird perches:** Arrange 10-15 bird perches per acre immediately after transplanting and remove these at grain filling stage (60 days after transplanting). Bird perches will attract birds and birds will eat pests. Broad costing of yellow rice will attract more birds. Height of bird perches should be more than the height of plants.
- **Pheromone traps:** Keeping 5-10 Pheromone traps in zigzag way to mass trapping of Stem borers. Lure has to be changed once in a month or after the expiry date
- **Application of Botanical extracts:** If all the above mentioned principles are followed religiously, there will not be any need to apply botanical extracts. However list of pests and botanical extracts

#### **Non – Pesticide Management in Red gram:**

- After flower initiation arrange Pheromone traps (5-7) per acre, for mass trapping of Heliothis
- For managing heliothis spray 3 lts. of Bhramasthram with 100 lts. of water.
- For sucking pests (aphids) management spray Neemasthram or spray 5 % NSKE solution 2 times with 7 days interval.

#### **Disease Management:**

- **Wilt:** Use resistant varieties for wilt disease. Apply 1-2 quintals of neem cake per acre
- **Leaf spots:** For managing all kinds of leaf spots and fungal diseases spray 6 lts. Fermented butter milk with 100 lts. Of water.
- **Mosaic:** Growing resistant varieties; for managing mosaic virus transmitting **bug** spray tobacco leaf extract.

- For managing **bug** spray 5 % NSKE solution or Neemasthram or tobacco leaf extract.
- For managing virus spray 6 lts. raw milk with 100 lta of water.

#### **Nutrient Deficiency Management practices:**

- Potash and phosphorous deficiencies are common in red gram. For all kinds of nutrient deficiencies spray cow dung and cow urine solution.

### **COTTON**

#### **Non Negotiables in Cotton:**

- **Deep summer ploughing:** Summer ploughing exposes the pupae surviving inside the soil. Depth of ploughing should be more than 6 inches. Exposed pupae will die due to excess heat (or) eaten away by birds
- **Growing of Trap crops:** Grow yellow flower Marigold (tall growing plants are preferred) and Castor around field, ensure flowering before main crop completes vegetative stage
- **Border crop:** Sow 3 rows of tall growing Jowar or Bajra or Maize (without any gap in the row). This will provide enabling environment for friendly insects and it also prevents
- **Seed treatment:** Take ½ lt. of Cow urine, 250 gms of cow dung and 250 gms. of living Soil (putta matti) mix thoroughly and mix to 5-6 kg seeds, after thorough mixing dry in shade
- **White and Yellow sticky traps:** Arrange 15-20 Yellow and White sticky traps per acre. Green leaf hoppers and thrips stick to these traps. Clean these traps once in two days and add sticky material to traps for effective trapping. Height of these traps should be the same with the plant height.
- **Bird perches:** Arrange 10-15 bird perches per acre immediately after transplanting and remove these at grain filling stage (60 days after transplanting). Bird perches will attract birds and birds will eat pests. Broad costing of yellow rice will attract more birds. Height of bird perches should be more than the height of plants.
- **Pheromone traps:** Keeping 5-10 Pheromone traps in zigzag way to mass trapping of boll worms. Lure has to be changed once in a month or after the expiry date

### **Non – Pesticide Management in Cotton:**

- **Sucking pests:** For managing different kinds of sucking pests spray 5 % NSKE solution (5 kg neem seed or 5 kg neem leaves in 100 lts. water). Immediately after germination of crop arrange 10-15 Yellow and White sticky traps per acre at 1 feet height.
- **Red spider mite:** For managing, spray 2 lt. tobacco leaf extract( 2 lt. tobacco leaf extract with 100 lt. water ) ensure that bottom of leaves wetted properly with spray solution.
- **Heliiothis:** For managing Heliiothis, spray chilli garlic solution or Bhramasthram. For mass trapping arrange 5 – 10 pheromone traps
- **Spodoptera:** Arrange 5 – 10 spodopter Pheromone traps per acre, 45 days after sowing.
- **Pink boll worm:** For managing pink boll worm, spray Agni asthram, remove the affected bolls and destroy larvae by keeping it in fire.
- **Spotted bollworm:** For managing spotted boll worm spray 5 % NSKE solution or Agnisthram

## **MAIZE**

### **Non-negotiables in Maize:**

- **Deep summer ploughing:** Summer ploughing exposes the pupae surviving inside the soil. Depth of ploughing should be more than 6 inches. Exposed pupae will die due to excess heat (or) eaten away by birds
- **Growing of Trap crops:** Grow yellow flower Marigold (tall growing plants are preferred) and Castor around field, ensure flowering before main crop completes vegetative stage
- **Border crop:** Sow 3 rows of tall growing Jowar or Bajra or Maize (without any gap in the row). This will provide enabling environment for friendly insects and it also prevents
- **Seed treatment:** Take ½ lt. of Cow urine, 250 gms of cow dung and 250 gms. of living Soil (putta matti) mix thoroughly and mix to 5-6 kg seeds, after thorough mixing dry in shade



- **White and Yellow sticky traps:** Arrange 15-20 Yellow and White sticky traps per acre. Green leaf hoppers and thrips stick to these traps. Clean these traps once in two days and add sticky material to traps for effective trapping. Height of these traps should be the same with the plant height.
- **Bird perches:** Arrange 10-15 bird perches per acre immediately after transplanting and remove these at grain filling stage (60 days after transplanting). Bird perches will attract birds and birds will eat pests. Broad costing of yellow rice will attract more birds. Height of bird perches should be more than the height of plants.
- **Pheromone traps:** Keeping 5-10 Pheromone traps in zigzag way to mass trapping of boll worms. Lure has to be changed once in a month or after the expiry date

#### **Non pesticide Management:**

- **Sucking pests:** For managing sucking pests (mites and aphids) spray 5 % NSKE solution, Neemasthrum and Tobacco leaf extract.
- **Stem borer:** For managing stem borer spray Agnisthrum.

### **GROUNDNUT**

- **Deep summer ploughing:** Summer ploughing exposes the pupae surviving inside the soil. Depth of ploughing should be more than 6 inches. Exposed pupae will die due to excess heat (or) eaten away by birds
- **Growing of Trap crops:** Grow yellow flower Marigold (tall growing plants are preferred) and Castor around field, ensure flowering before main crop completes vegetative stage
- **Border crop:** Sow 3 rows of tall growing Jowar or Bajra or Maize (without any gap in the row). This will provide enabling environment for friendly insects and it also prevents
- **Seed treatment:** Take ½ lt. of Cow urine, 250 gms of cow dung and 250 gms. of living Soil (putta matti) mix thoroughly and mix to 5-6 kg seeds, after thorough mixing dry in shade
- **White and Yellow sticky traps:** Arrange 15-20 Yellow and White sticky traps per acre. Green leaf hoppers and thrips stick to these traps. Clean these

traps once in two days and add sticky material to traps for effective trapping. Height of these traps should be the same with the plant height.

- **Bird perches:** Arrange 10-15 bird perches per acre immediately after transplanting and remove these at grain filling stage (60 days after transplanting). Bird perches will attract birds and birds will eat pests. Broad costing of yellow rice will attract more birds. Height of bird perches should be more than the height of plants.
- **Pheromone traps:** Keeping 5-10 Pheromone traps in zigzag way to mass trapping of boll worms. Lure has to be changed once in a month or after the expiry date
- **Seed treatment:** Take 60-75 kg seeds per acre and mix with 2 lt. cow urine, 1kg. Cow dung, 1 kg. soil (putta matti), after thorough mixing dry in shade. Or mix seeds with 2 lt. cow urine, 1 stick ash and 50 gm. of Acetofida and dry in shade.

#### **Pest and Disease management:**

- **Red Hairy Caterpillar:** Community bonfires are playing effective role in controlling Red hairy caterpillar. If the intensity is more, spray chilli garlic or Brahmasthram.
- **Root grub:** Remove compost pits in the vicinity of the field. Remove ber trees around the field as it is of the host tree for root grub. Add 1-2 quintals neem cake in last ploughing.
- **Leaf folder:** For managing leaf folder spray 5 % NSKE solution ( 5 kg neem seeds in 100 lt. water) or Neemasthram. Arrange Delta traps 10 per acre.
- **Spodoptera:** For managing spodoptera spray Bhramasthram or Chilli Garlic solution. Remove egg masses on the back side of leaves (ground nut leaves and caster leaves).
- **Sucking pests:** For managing sucking pests(thrips,aphids and green leaf hoppers ) spray 5 % NSKE solution (5 kg neem seeds in 100 lt. water) or Neemasthram. Arrange 10-15 yellow and white sticky traps per acre.
- **Tikka leaf spot:** For managing Tikka leaf spot and rust, spray cow dung & cow urine and Acetofida solution (or) fermented butter milk (6 lt. in 100 lt. water).
- **Stem rot and Root rot:** For managing stem rot and root rot add 1-2 quintals neem cake in final ploughing.

- **Bud necrosis:** as a precautionary measure arrange 20 white sticky traps immediately after germination. Spray 5 % NSKE solution (5 kg neem seeds in 100 lt. water) or neem oil or Neemasthram.

## SUNFLOWER

- **Deep summer ploughing:** Summer ploughing exposes the pupae surviving inside the soil. Depth of ploughing should be more than 6 inches. Exposed pupae will die due to excess heat (or) eaten away by birds
- **Growing of Trap crops:** Grow yellow flower Marigold (tall growing plants are preferred) and Castor around field, ensure flowering before main crop completes vegetative stage
- **Border crop:** Sow 3 rows of tall growing Jowar or Bajra or Maize (without any gap in the row). This will provide enabling environment for friendly insects and it also prevents
- **Seed treatment:** Take ½ lt. of Cow urine, 250 gms of cow dung and 250 gms. of living Soil (putta matti) mix thoroughly and mix to 5-6 kg seeds, after thorough mixing dry in shade
- **White and Yellow sticky traps:** Arrange 15-20 Yellow and White sticky traps per acre. Green leaf hoppers and thrips stick to these traps. Clean these traps once in two days and add sticky material to traps for effective trapping. Height of these traps should be the same with the plant height.
- **Bird perches:** Arrange 10-15 bird perches per acre immediately after transplanting and remove these at grain filling stage (60 days after transplanting). Bird perches will attract birds and birds will eat pests. Broad costing of yellow rice will attract more birds. Height of bird perches should be more than the height of plants.
- **Seed treatment:** Take 60-75 kg seeds per acre and mix with 2 lt. cow urine, 1kg. Cow dung, 1 kg. soil (putta matti), after thorough mixing dry in shade. Or mix seeds with 2 lt. cow urine, 1 stick ash and 50 gm. of Acetofida and dry in shade.

### **Pest and Disease management:**

- **Sucking pests:** For managing sucking pests (green leaf hopper, white fly and thrips) Spray 5 % NSKE solution (5 kg neem seeds in 100 lt. water) or neem oil (1 lt. per acre) or Neemasthram.

- **Leaf and head eating heliothis:** For managing leaf and head eating heliothis, spray Bhramasthram or Chilli Garlic solution.
- **Alternaria leaf spot:** For managing Alternaria leaf spot spray cow dung & cow urine and Acetofida solution (or) fermented butter milk (6 lt. in 100 lt. water).
- **Necrosis:** Spreads through thrips. Hence we need to control thrips, for managing thrips Spray 5 % NSKE solution (5 kg neem seeds in 100 lt. water) or Neemasthram or neem oil (1 lt. per acre). Arrange white sticky traps. For managing virus spray 6 lt. raw milk with 100 lt. water.
- **Birds:** For protecting crop from birds arrange reflecting ribbons at 1 feet height to crop in north –south direction , so ribbons will reflect with fallen sun shine.

## ANNEXURE – 1

### Plants for Non-Pesticide Management

S.no	Scientific name	English name	Hindi name	Plant part used	Presence of	Character
1	Areca catechu	Areca nut	Supari	Nut	Arikolin/alkoloids	Pesticide&fungicide
2	Acorus calamus	Sweet Flag	Safed Bach	Under ground stem	Scented oils	Pesticide
3	Albizia lebbeck	Lebbeck tree	Siris	Seed/leaf/root	Caffic acid/alkaloids	Pesticide
4	Abelmoschus esculentus	Ladie's Finger	Bhindi	Leaves/pods	Mucilage /pectin	Fungicide
5	Piper Nigrum	Black pepper	Gol-Mirch	Seeds	Piperin	Pesticide&fungicide
6	Butea monosperma	Flame of the Forest	Dhak	Flower	Chalokones/mopanol	Pesticide
7	Calotropis procera	Swallow-wort	Akada	Leaves	Alkaloids	Pesticide
8	Cleistanthus collinus			Plant	Alkaloids	Pesticide
9	Crotalaria juncea	Sunn Hemp	Sannai	Leaves/Seeds	Saponins/Vitamin –A	Pesticide&fungicide
10	Datura Stramonium	Stink weed	Dhatthura	Leaves	Alkaloids/Hayacine	Pesticide
11	Chrysanthemum indicum	Chrysanthemum	Gul-Daoodi	Flowers	Pyrethrum	Pesticide
12	Capsicum annum	Green chillies	Lal-Mirch	Fruits	Capscin	Pesticide
13	Allium sativum	Garlic	Lahsan	Leaves	Amino acids/allenin	Pesticide
14	Zingiber	Ginger	Adrach	Rhizome	Scented oils	Pesticide

	officinale					
15	Madhuca indica	Mahua tree	Mahwa	Fruits	Oils/saponins	Pesticide
16		Maize			-----	Border crop
17	Azadirachta indica	Neem	Neem	Leaves/fruits	Azadaractin/lemonoids	Pesticide
18	Ocimum basilicum	Osimum	Thulasi	Leaves	Scented oils/yuginals	Pesticide
19	Pongamia pinneta	Indian Beech Tree	Karanj	Fruits	Karangin/glabrin	Pesticide
20	Ricinus communis	Castor	Erandi	Seeds	Ricinolic acid	Pesticide
21	Calendula officinalis	Mary gold	Caltha, Ganda	Flowers	Alkaloids	Fungicide
22	Acacia nilotica	Babul	Kali-kikar	Leaves	Alkaloids	Pesticide
23	Boerhavia diffusa	Horse-Purslane	Punarnava	-----	-----	-----
24	Sapindus emarginatus	Soap nut	Ritha	Nuts	Resins	Pesticides
25	Tephrosia purpurea	Purple-Tephrosia	Sarpanka	Leaves	-----	Pesticide
26	Nicotiana tabacum	Tobacco	Thambaku	Leaves	Nicotine	Pesticides and fungicide
27	Vetex Negundo	Chaste Tree	Nirgandi	Leaves	Alkaloids/Nisindin	Pesticide
28	Cocos nucifera	Coconut	Nariel	Leaves	Amino acids/Vitamin -B	Pesticide
29	Aegal marmalus	Bael Tree	Bel	Leaves	Beta -citosterol	Fungicide and pesticide
30	Acacia nilotica	Babul	Kali-kikar	Leaves		Pesticide
31	Bougan villeda					
32	Anacardium occidentale	cashew	Kaju	Leaves/fruits	Phenolics	Pesticide
33	Citrus aurantifolia	citrus	Nimbu	Leaves/fruits	Trephines /Esters	Pesticide
34	Moringa oleifera	Drumstick	Soujna	Leaves/Roots	Moringin/bengalimine	Bactericide
35	Eucalyptus tereticornis	Grey Gum		Leaves	Scented oils	Pesticide
36		Euphorbia			Euphorbin/tritor phenoids	
37	Gliricidia sepium	Gliricidia	Makham sem	Leaves	Alkaloids	Rodenticide
38	Vitis vinifera	Grape	Angoor	Seeds	Amino acids/Vitamins	Pesticide and fungicide
39	Arachis hypogaea	Ground nut	Moongphali	Seeds	Nitrogen	Pesticide

40	Psidium guajava	Guava	Jamphal	Leaves	Beta – setosterol/masolonic acid	Pesticide
41	Lantana camara	Lantana	Lantana	Leaves	Alkaloids	Pesticide
42	Andropogon citriodorum	Lemon grass	Aghyaghas	Leaves	Scented oils	Ants
43	Ipomoea batatas	Sweet Potato	Shakar-Kand, Mitha Alu	Leaves	Minerals and vitamins	Fungicide
44	Fenugreek	Menthi	Fenugreek	Leaves	Peppermint oil	Pesticide
45	Brassica juncea	Mustard	Sarsa		Ninhydrin/Vitamin-A	Pesticide
46	Nerium odorum	Oleander	Chandni, Kanir, Kaner, Ganer	Leaves	Olendrin/nryodin	Pesticide and fungicide
47	Strychnos nux-vomica	Nux vomica, Snake Wood, Strychnine tree	Kuchila	Nuts	Alkaloids	Pesticide
48	Carica papaya	Papaya	Papaya, Papai, Papiya, Papita	Leaves	Carpine	Pesticide
49	Thespesia populnea	Umbrella Tree	Paras-Pipal	Leaves/seeds	Alkaloids	Pesticide
50	Annona squamosa	Custard apple	Sherifa	Leaves/seeds	Alkaloids	Pesticide
51	Sorghum vulgare	Sorghum	Jawari, Joar		-----	Pesticide
52	Leucaena leucocephala	Subabul, Kaniti	Vilaitibavai, Reru		-----	Pesticide
53	Camellia thea	Tea, Theyaku	Tea		Coffin/Tanins/shiknic acid	Pesticide
54	Curcuma domestica	Turmeric	Haldi, Halud		Curcumin/Alkaloids	Pesticide