

## **LLDPEAGRICULTURE FILM**

### **1. INTRODUCTION**

Mulching (Agriculture Film) is the practice of covering the soil around plants to improve the growing conditions for the crop. Historically natural mulches such as straw, compost, hay and wood chippings have been used but over the last 40 years paper and plastics have been tried. Because of its poor wet strength and price, paper has been found less effective and more costly than plastic. The result is that plastic mulch film is the primary choice for agricultural application.

Plastic mulch film is widely used on high value crops, such as tomatoes, melons, cucumbers, squash, peppers, strawberries and increasingly on lower value crops such as corn and potatoes.

#### **Benefits of Plastic Mulch Film**

Covering the soil around the plant with plastic film results in the following benefits:

- Moisture retention (particularly valuable in high temperature regions with low rainfall).
- Weed reduction
- Increase in soil temperature
- Less crop contamination
- Less soil compaction
- Improved germination rates

These benefits lead to higher yields (by upto 100% for certain crops) earlier crops (by upto one month) and in some cases the ability to grow certain crop, which would not be possible without the mulch film.

Because of the reduction in weeds, herbicides can be eliminated or at least reduce, which is of particular importance where legislative constraints are being introduced. Pesticides may also be eliminated. The lower soil compaction and greater fertility also allows for a reduction in fertilizer.

## **2. MARKET POTENTIAL**

To meet the growing needs of the farmers who wish continuously to improve the profitability of their farming by using more efficient materials, the plastics industry has introduced new products into the market..

In its early days, Plasticulture mainly were concerned with crop protection techniques (greenhouses, low tunnels & mulch) or the preservation of food for livestock silage). During the course of its evolution other techniques have appeared, always for the same reason of profitability, producing more, at less cost with low investment while improving the quality of the products.

The new techniques are -

- the direct cover of perforated polythylene in the 70's.
- soil-less cultivation (or hydroponics), a long-known technique, the use of which grew explosively in the 1960's.
- energy screens, mainly used in glasshouses, a consequence of the oil crisis of 1974.
- Thick pond liner films
- use of stretch films for glass silage
- & more recently, animal housing

Coextrusion : This technique, which has been used for a long time in the packaging sector, is being increasingly employed inn the agricultural sector, ever since new lines enabling the extrusion of large-width, multilayer films were developed. Since then, the converters have made large investments in the field, allowing the introduction onto the market of new high performance films based on combinations of various differently formulated materials.

The appearance of coextruded films has been of greatest interest for applications such as greenhouse or silage films.

For silage, coextrusion has, in comparison with single layer films of the same thickness, enabled products with higher performance with regard to mechanical & oxygen barrier properties to be obtained, or equal performance with reduced thickness & at a lower price.

An increasing demand of fresh products, the intensification of competition (and hence the need to increase crop yields, quality & mechanisation), geographical expansion, the need for independence in respect of climate conditions as well as the revalorisation of the agricultural profession, all these are factors favouring a significant growth of plasticulture in future years.

LDPE lining is suitable for lining of canals & reservoirs, both with soil or rigid cover.

### **3. BASIS & PRESUMPTIONS**

- (i) The output capacity is taken as 120 kgs./hr. The unit will work at 20 hrs. per day for 25 working days in a month and 300 days in a year. The output capacity may vary from machinery and the cost of machinery may also vary from supplier to supplier.
- (ii) The time period for achieving the full envisaged capacity utilisation is six months.
- (iii) The labour wages are as per the prevailing rates in the market
- (iv) The rate of interest for fixed and working capital is taken as 12 per cent
- (v) The margin money requirement for this project is 30 per cent
- (vi) The pay back period of this project is 5 years
- (vii) The rate of land is taken @ Rs.500/- per sq.mtr. and construction charges are taken @ Rs.3500 per sq.mtr. this may also vary from place to place.
- (viii) The present profile has to be updated taking into prevailing cost of land, building, machinery etc. at the time of implementation of the project.

#### 4. **IMPLEMENTATION SCHEDULE**

|  |   |              |
|--|---|--------------|
| The time requirement for preparation of Project Report | : | Two months   |
| Time requirement for selection of Site                 | : | One month    |
| Time required for registration as Small Scale Unit     | : | One week     |
| Time required for acquiring the loan                   |   |              |
| Machinery procurement, erection and commissioning      | : | Three months |
| Recruitment of labourer etc.                           | : | One month    |
| Trial runs   | : | One month    |

#### 5. **TECHNICAL ASPECT**

##### MANUFACTURING PROCESS

The manufacturing process used to manufacture LLDPE agricultural film is extrusion. The film thickness range varies between 100-800 gauge and the layflat tubing width of the film varies between 450 mm to 2100 mm (18" to 84").

LLDPE granules are fed to a single screw extruder, where they are melted & pumped out of a die in the form of a tube. This is then inflated such that it takes a shape of a bubble. The bubble formed is collapsed & drawn upwards by two nip rolls. Flattened tube is then wound on a winder.

#### 6. **QUALITY & STANDARD**

Agriculture Films are manufactured as per customers' requirement.

#### 7. **PRODUCTION CAPACITY (Per Annum)**

|                     |   |               |
|---------------------|---|---------------|
| (a) Quantity (M.T.) | : | 720 M.T.      |
| (b) Value (Rs.)     | : | 6,33,60,000/- |

#### 8. **TOTAL POWER REQUIREMENT**

Total connected load (KW) : 70

## 9. POLLUTION CONTROL MEASURES

The unit does not create any pollution. However, a proper ventilation should be made in the processing area for the better circulation of the fresh air.

## 14. ENERGY CONSERVATION

Entrepreneurs may select energy efficient machinery and proper planning has also to be made for saving energy in the unit.

## 10. FINANCIAL ASPECT

### A. FIXED CAPITAL

| i) <u>Land &amp; Building:</u> | <u>Area Sq.Mtrs.</u> | <u>Rate per Sq.mtr.</u> |                                |
|--------------------------------|----------------------|-------------------------|--------------------------------|
| <u>Value (Rs.)</u>             |                      |                         |                                |
| Land                           | 500                  | 500                     |                                |
| 2,50,000.00                    |                      |                         |                                |
| Building                       | 300                  | 3500                    |                                |
| 10,50,000.00                   |                      |                         |                                |
|                                |                      | Total:                  | -----<br>13,00,000.00<br>----- |

### ii) MACHINERY & EQUIPMENT

| <u>Sr.No.</u>       | <u>Description of machines</u>                                  | <u>Qty. (Nos.)</u> |
|---------------------|---|--------------------|
| <u>Value (Rs.)</u>  |   |                    |
| (a) Production Unit |   |                    |
| 21,00,000.00        | i) Extrusion Blown Film Plant (90 mm)<br>capacity 120 kgs./hour |                    |

|               |   |                            |              |
|---------------|---|----------------------------|--------------|
|               | ii) Cooling Tower                                 |                            |              |
|               | 2,00,000.00                                       | iii) Compressor            |              |
|               | 3,00,000.00                                       |                            |              |
| (b)           | Testing Equipment & Other Accessories             |                            |              |
|               | 2,00,000.00                                       |                            |              |
| (c)           | Electrification & Installation @ 10% of           |                            |              |
|               | 2,80,000.00                                       | cost & machinery (a) & (b) |              |
| (d)           | Pre-operative expenses                            |                            | 1,20,000.00  |
|               |   |                            | -----        |
|               | Total cost of machinery & equipment (a to d)      |                            |              |
|               | 32,00,000.00                                      |                            | -----        |
| (e)           | Cost of Moulds & Dies                             |                            | 1,00,000.00  |
| (f)           | Cost of Office Equipment/Furniture/Computers etc. |                            |              |
|               | 3,00,000.00                                       |                            |              |
|               |   |                            | -----        |
|               |   | Total:                     | 36,00,000.00 |
|               |   |                            | -----        |
| Fixed Capital | = (i + ii)  | = (13,00,000 + 36,00,000)  | =            |
|               |   |                            |              |
| 49,00,000.00  |   |                            |              |

**B. WORKING CAPITAL**

i) Staff and Labour (Per month)

| Designation<br>(Rs.)                         | Nos. | Salary (Rs.) | Total    |
|--|------|--------------|----------|
| -----  |      |              |          |
| Production Engineer/<br>10,000.00<br>Manager | 01   | 10,000.00    |          |
| Sales Executive                              | 03   | 5,000.00     |          |
|  |      |              | 5,000.00 |

|                                    |    |          |           |
|------------------------------------|----|----------|-----------|
| Accountant-cum-<br>4,000.00        | 01 | 4,000.00 |           |
| Store Keeper                       |    |          |           |
| Watchman                           | 02 | 3,000.00 |           |
| 6,000.00                           |    |          |           |
| Skilled Workers                    | 03 | 3,500.00 |           |
| 10,500.00                          |    |          |           |
| Helpers                            | 03 | 3,000.00 |           |
| 9,000.00                           |    |          |           |
|                                    |    |          | -----     |
|                                    |    |          | 44,500.00 |
| Add perquisite @ 10% of the salary |    |          |           |
| 4,450.00                           |    |          |           |
|                                    |    |          | -----     |
|                                    |    | Total:   | 48,950.00 |
|                                    |    | Or Say:  |           |

49,000.00

ii) Raw Material (P.M.)    Qty.(Kg/Tons)    Rate Rs./MT

Total(Rs.)

|                |       |       |              |
|----------------|-------|-------|--------------|
| LLDPE Granules | 60 MT | 75000 | 45,00,000.00 |
|----------------|-------|-------|--------------|

iii) Utilities (per month): \_\_\_\_\_ (Rs.)

i) Power

1,05,000.00

(60% utilisation x 70 KW x 500 hrs.xRs.5 per unit)

ii) Water

5,000.00

|  |  |        |             |
|--|--|--------|-------------|
|  |  | Total: | -----       |
|  |  |        | 1,10,000.00 |
|  |  |        | -----       |

iv) Other Contingent Expenses (per month)

(Rs.)

a) Repairs and Maintenance

1,000.00

|    |                           |           |
|----|---------------------------|-----------|
| b) | Transportation charges    | 3,000.00  |
| c) | Postage and stationery    | 1,000.00  |
| d) | Telephone/Fax/Computer    | 2,000.00  |
| e) | Consumable Stores         | 1,000.00  |
| f) | Advertisement & Publicity | 2,000.00  |
| g) | Insurance                 | 3,000.00  |
| h) | Miscellaneous Expenses    | 2,000.00  |
|    |                           | -----     |
|    | Total:                    | 15,000.00 |

**11. TOTAL WORKING CAPITAL (PER MONTH)**  
(Rs.)

|      |                              |                |
|------|------------------------------|----------------|
| i)   | Staff and Labour             | 49,000.00      |
| ii)  | Raw Material                 | 45,00,000.00   |
| iii) | Utilities                    | 1,10,000.00    |
| iv)  | Other Contingent Exp.        | 15,000.00      |
|      |                              | -----          |
|      | Total:                       | 46,74,000.00   |
|      |                              | -----          |
|      | Working Capital for 3 months | 1,40,22,000.00 |

**12. TOTAL CAPITAL INVESTMENT**  
(Rs.)

|    |                              |                |
|----|------------------------------|----------------|
| A. | Fixed Capital                | 49,00,000.00   |
| B. | Working Capital for 3 months | 1,40,22,000.00 |
|    |                              | -----          |



Total:

1,89,22,000.00

13. **FINANCIAL ANALYSIS**

(Rs.)

A. Cost of Production (per year) (300 days)

(a) Total Recurring Cost

5,60,88,000.00

(b) Depreciation on building @ 5%

52,500.00

(c) Depreciation on machinery & equipment @ 10%

3,20,000.00

(d) Depreciation on Dies & Moulds & Office

80,000.00

Equipment @ 20%

(e) Interest on total Capital Investment @ 12%

22,70,640.00

-----  
Total: 5,88,11,140.00  
-----

Or Say Rs.:

5,88,11,000.00

B. Sales/Turn over (per year)

Item

Qty.(MT)

Rate (MT)

Value

(Rs.)

LLDPE Agriculture Film 720 M.T. 88,000 6,33,60,000.00

C. Net Profit (per year)

Sales - Cost of Production = Profit Rs.

Rs.6,33,60,000 - Rs.5,88,11,700 = 45,49,000

D. Net Profit Ratio =  $\frac{\text{Net Profit} \times 100}{\text{Sales}}$

=  $\frac{45,49,000 \times 100}{6,33,60,000}$  = 7.17%

E. Rate of Return =  $\frac{\text{Net Profit} \times 100}{\text{Total Capital Investment}}$   
=  $\frac{45,49,000 \times 100}{1,89,22,000} = 25.89\%$

F. Break-even Point

Fixed Cost (Per Year) Rs.

a) Depreciation on Building @ 5%

52,500.00

b) Depreciation on Machinery & Equipment @ 10%

3,20,000.00

c) Depreciation on Moulds/Dies & Office

80,000.00

Equipment @ 20%

d) Insurance

36,000.00

e) Interest on total capital investment

22,70,640.00

f) 40% of salary and wages

2,35,200.00

g) 40% of other contingent expenses

57,600.00

Total: 30,51,940.00

Or Say Rs. :

30,52,000.00

Net Profit (Per Year)

B.E.P. % =  $\frac{\text{Fixed Cost} \times 100}{\text{Fixed Cost} + \text{Net Profit}}$

=  $\frac{30,52,000 \times 100}{\dots}$

$$\begin{aligned} & 30,52,000 + 45,49,000 \\ = & \frac{30,52,000 \times 100}{76,01,000} \\ = & 40.50\% \end{aligned}$$