

## DAL ANALOGUE FROM SOYA

(Information in this project profile is extracted from articles by Dr.Suresh Itapu, Ph.D. Executive Director, Soy Food Promotion and Welfare Association

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*Dal* analogue is made from edible grade defatted soya flour, whole wheat flour and turmeric powder. As *dal* analogue is made from inexpensive raw materials, it is less than half the price of *Tur dal* to the consumers. *Dal* analogue has more than 30% protein which is more than 30% increase in protein content compared to some of the traditional *dals*

Reliance Retail (RR) conducted a consumer survey to evaluate the consumer acceptance of *dal* analogue. Based on the consumer survey, RR launched *dal* analogue under *Strength Plus* brand name in the Mumbai market. Recently, NDDDB started marketing *dal* analogue under the brand name *idal* through their Safal outlets.

Costing (Rs) at production capacity of 2.5MT/hr

Defatted Soy Flour 49.58 % @ Rs 28 per kg	Rs 13.882
White flour 49.58% @ Rs. 18 per Kg	Rs.8.924
Emulsifier 0.74 % @ Rs. 66 per kg	Rs.0.488
Turmeric 0.10 % @ Rs. 140 per kg	Rs. 0.140

### Cost of Recipe

Processing costs (Utilities, manpower)	Rs.1.984
Packaging cost	Rs.1.500
Investment costs (Depreciation, interest on loan)	Rs.1.449
Calculated production cost / Kg	Rs.28.368
Production yield (%) 95	

### Total Estimated Production Cost / Kg

**Rs.29.86**

### Proposal

It is suggested that a 20000 tons per year dal analog manufacturing plant may be set up

### Market

India is the world's largest producer as well as importer of pulses, which are an important component of the Indian diet. Over the last 50 years pulses production has been stagnant which is leading to a decline in per capita consumption, continuous increase of imports.

During this period, domestic pulse prices have increased relative to other foods.

In 2008 India imported about 25 lakh tons of pulses (about 15% of total pulses supply), which is growing steadily since 2000-01. Even with about 14% demand met through imports, there is still a gap in the demand and supply of pulses in India. This is evident with more than 150% increase in the prices of *dals* in the last five years and this situation may continue further.

## Manufacturing process

Extrusion cooking, one of the versatile food processing technologies can be put to use to manufacture soy-based *dal* analogue. The process involves mixing the ingredients and extruding through a specially designed extruder. Product identical to dal is obtained. During extrusion process the product is cooked to some extent.

## Technology

The technology is inbuilt (machinery supplier will provide the operation details and methods to produce a desired product mix). Wenger Manufacturing (manufacturer of extrusion equipment) have been collaborating in development of this process

**Raw materials:** defatted soya flour, Wheat flour, emulsifier

## Utilities

Power requirements would be about 1200KVA

## Plant and Machinery

Wenger twin screw extruder, mixers conveyers and packing machinery

## Project cost

Rs. 25 crores

## Turnover and profitability

Turnover of Rs. 60 crores with 6 to 8 % PAT margin can be expected

**Suggested location :** Near Hyderabad

## Strategy/ options

A number of food products are manufactured using the extrusion cooking process. Wenger can provide guidance in this area. Instead of one product a mix can be considered

Alternatives like using partly dal flour, corn flour and natural coloring materials like corn gluten are some other options to minimize cost.

**Consultancy from APITCO : Sourcing technology. Selection of plant and machinery. Market study. Detailed project report preparation.**