

## PRODUCTION OF CEREAL FLAKES: *JOWAR*

### 1. INTRODUCTION

Jowar flakes are a new type of products. They are not traditional like rice flakes which are known since time immemorial. But jowar flakes are produced on the same lines as rice flakes are produced. The coarse nature of the grain has been the cause for not making the jowar flakes. The flakes were being produced in the olden days by pounding. As jowar is a coarse grain, it was difficult to pound. With the advent of modern machines, flaking has become easy paving way for the production of jowar flakes. Thus, the CFTRI has developed a process for producing jowar flakes.

It is suitable specially for preparing deep fat fried (chewda) products such as fried and seasoned mixture. It is also suitable for preparing toasted and seasoned mixtures, energy food, tamarind bhath, upma, sweet/savoury, pongal, sweet gravy (payasam), etc. For the preparation of bhath the flake thickness should be about 0.5 mm and about 0.8 mm to 1.0 mm for the preparation of chewda.

### 2. RAW MATERIAL – Sources

The main raw material used in the manufacture of jowar flakes is jowar. The total production of jowar in our country is little over 12.9 million tonnes. Of this Maharashtra's contribution is highest It produces 6.635 m. tonnes, while Madhya Pradesh and Karnataka produce 1.783 and 1.624 m. tonnes taking second and third position.

Jowar should be well matured, dean, uniform in size, light yellowish or white in colour. It should be free from insect infestation and other extraneous matter. The moisture content should be 12-14%. Any variety including hybrids can be used; normally bold kernels are preferred.

### 3. INSTALLED CAPACITY

Suggested economic unit	
Capacity	- 3000 kg/shift/day
Working capacity	- 300 days/annum
Annual capacity	- 900 tonnes
Optimum capacity utilization	- 70%

### 4. TECHNOLOGY/MANUFACTURING -Availability

The unit operations involved in the process are: cleaning, soaking, roasting, resting, polishing, flaking, sifting and drying.

The jowar is cleaned free of contaminants, soaked in hot water overnight, roasted. The roasted jowar is rested to obtain wrinkle-free flakes.

The yield is about 80% on clean jowar basis, depending on the degree of polish given and the bran content of jowar. During the process about 8% broken flakes are obtained.

### 5. PLANT AND MACHINERY

**5.1 Principal equipments:** Hot water boiler/soaking tanks, roaster, cone polisher, flakers, grader and drier.

**5.2 Auxiliary equipments:** Weighing scales, trolleys, fumigation equipment set.

### 6. PROJECT COST - FIXED COST - WORKING CAPITAL (in Rs.'000)

a)	Land (600 m <sup>2</sup> ) Hired Industrial. Shed	60.00
b)	Building (100 m <sup>2</sup> ) (Deposit)	250.00
c)	Plant and machinery	1100.00
d)	Miscellaneous fixed assets	150.00
e)	Pro-operative expenses	100.00
	Total fixed capital	1660.00
	Working capital margin	165.00
	Total Project cost	1825.00

### 7. ANY OTHER SPECIAL FEATURES

During the manufacture of the jowar flakes about 12% bran and 7.5% broken jowar flakes on cleaned jowar basis are obtained as by-products. The bran obtained - during polishing can be used as animal feed. The broken jowar flakes can be used in the preparation of traditional food products.