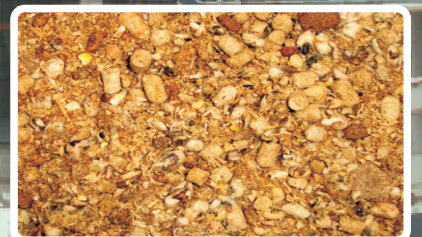
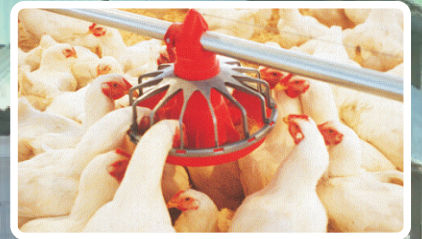
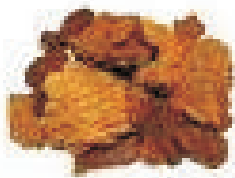


**SPECTEC'S**

## **CATTLE, POULTRY FEED PLANTS**



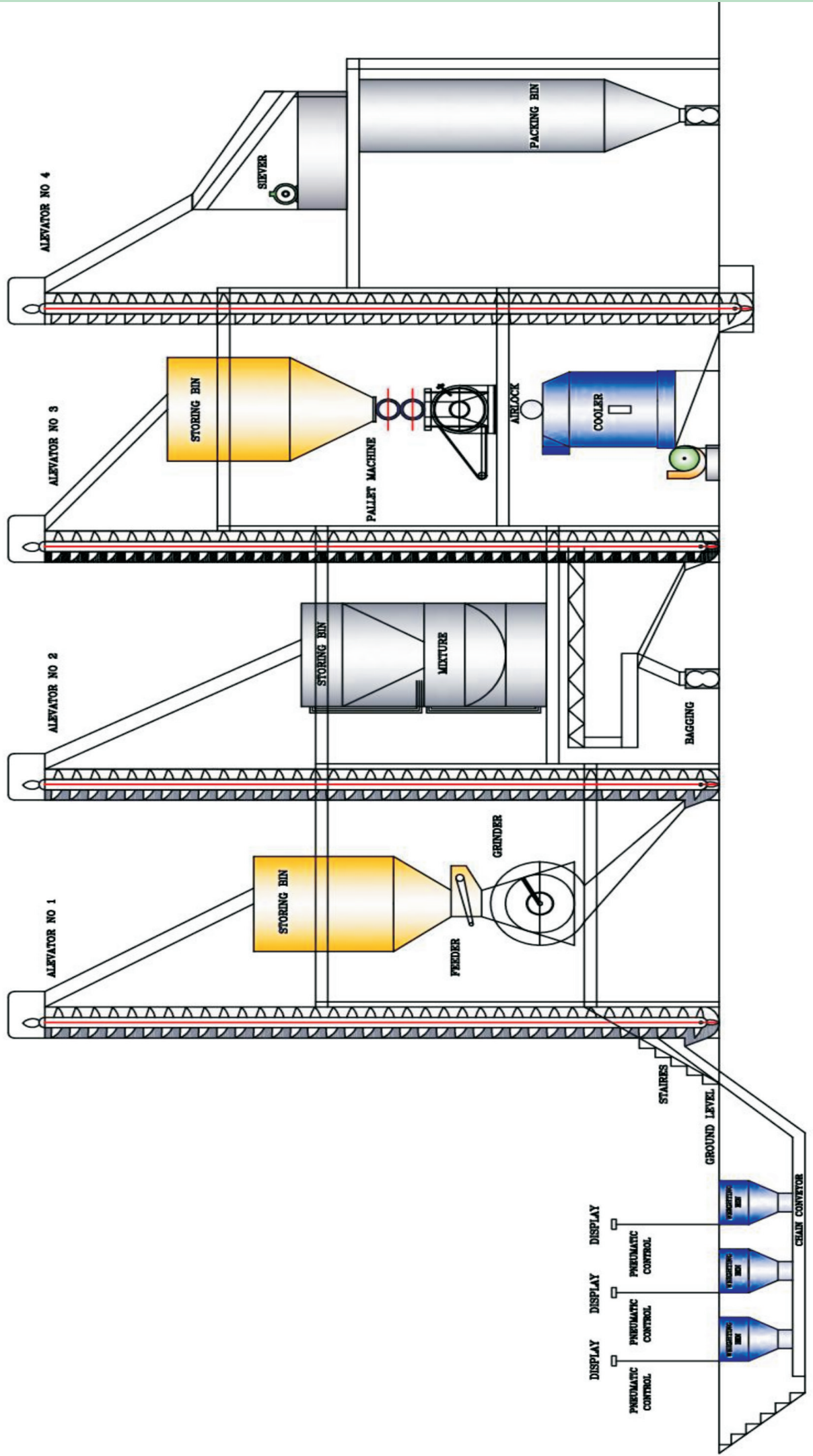
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# GENERAL LAYOUT FOR CATTLE FEED





### Raw Material intake

All the solid ingredients packed in bags for feed production would be received in plant by road. Their materials will be store in store godown. According to requirement these material will be dumped manually in dumping hopper and conveyed to the pre-cleaner through the mechanical conveyor system.

### Pre-Cleaning

Pre-cleaning is a process of removing unwanted material from our ingredients. As we received the material, there will be possibility of having unwanted material such as iron pieces, jutes threads, oversize pieces which can jam our silos\ system. So for cleaning we use a pre-cleaning machine. Then these pre-cleaned materials are transpired to silos through mechanical conveyors and elevators.

### Batching

Batching is process of combining each and every material in a proportioning ratio called feed formula it is very important process of every feed plant. A Better and accurate ration of material will give is a better quality and a fully nutrients feed. This batching process may be a computerized controlled or may have manual control room to cut the cost of the plant.

### Grinding

Grinding is a process of bracking solid ingredients to a required size. Finer the material higher will be the surface area exposure to heat and moisture to accomplish the gelatinization in conditioning. A fine grinding material can transfer his maximum energy to the animal as compare to a course grinded material. It is a very energy consuming process.

### Mixing

As the name implies "Mixing" is a process of combining \ blending of micro ingredients. A proper mixing can be defined with a unit called co-efficient of variation. Smaller the co-efficient of variation higher will be the quality of mixing. Our well designed mixer machine has such a great quality. Beyond this is a mixer machine should have a provision to mix liquid to it as we need oil or molasses addition to the feed.

### Conditioning

Conditioning is a checking process. We decide whether our material is ready to pellet or not. When the material will be ready, only then it will be aloud to transfer to the pellet mill. Conditioning is a process of adding heat & moisture in the mixed feed to achieve gelatinization and making the product more pliable for palleting. Heating is done to roast the mixed feed which will increase its digestibility quality. And moisture is increase to easy palleting of feed. A good conditioning should have a desired retention time.

### Palleting

Palleting is a main step of any pelleting plant. It is a process of converting any powder to solid shape called pallet. In this process the powder material is extruded through a well designed die with the help of rollers to convert it in to pallets. The quality & production of pallet mill depends on so many parameters.

1. Feed formula
2. Die configuration
3. Quality of Grinding
4. Quality of conditioning

No doubt every material can be converted into pallets weather it may be a wood.

### Cooling

Cooling is a process of removing heat. As we know during conditioning we add heat and moisture and also through palleting process heat generates by extrusion process. But the pallet should have a standard moisture and heat to attain its life of storage and make it safe from fungus. So we have to remove extra heat and moisture from the pallet. All this is done with the help of a well designed counter flow cooler. Here we use atmosphere air to cool the pallet.

### Crumbling

Crumbling is a process in which pallets after cooling is broken in to small pieces to make it suitable for small chicks or hens. When there is no need of crumbling, we by-pass the feed directly to the screen with the help of By-pass Mechanism. A well designed crumbler should have capability to break the pellets without making much finer.

### Screening

Product coming out of crumbler is or their in pallets form (if we use by-pass) or in crumbs form. There are required to screen to remove fines and oversize particle. A double deck screeners are used to remove both fine and oversize particles. Fine and directed to pallet mill for repalleting while oversize particles are directed to crumbler for reprocessing. A well desired screener should have capability to remove fine and over size to a desired percentages, And it should not be clog frequently.

### Bagging

The end of process in every plant is bagging also called packing. After screening the finished products are filled in to bags. In small and medium plants, bagging can be carried out manually but for higher production it is batter to go for electronic bagging machine.

### Design Data and Design basis of Feed Formula For pelletised feed for Milk cattle

Sr. No.	Feed formulation (General)	% Basis of Dry matter		Limit
		Ordinary	By-pass	
1	Crude protein	20	22	Minimum
2	Crude fibre	12	12	Maximum
3	Ether extract (fat)	2.5	3	Minimum
4	Acid insoluble ash (sand, silica)	4	4	Maximum
5	Common Salt	2	2	Maximum
6	Vitamin A	500iu/kg	500iu/kg	Minimum
7	Calcium	0.5	0.5	Minimum
8	Phosphorus	0.5	0.5	Minimum

Other requirements for feed				
1	Grains	10	20	Minimum
2	Moisture	10	10	Maximum
3	Molasses	10	10	Maximum
4	Premix of salt, urea and mineral mixture with a carrier	10	10	Maximum

Typical feed formula : (Tentative figures and can change with seasons/costing etc.)

Sr. No.	Type - 1	By-pass feed		
	Ingredient	Percentage	Ingredient	Percentage
1	De-oiled Rice Bran (DORB)	49	De-oiled Rice Bran (DORB)	26.6
2	DOCSC	10	DOCSC	37
3	Maize/Broken Rice	10.1	Grain (Maize)	9.5
4	Broken Rice/ Maize	5	Molasses	13 (Max.)
5	Molasses	13 (Max.)	Mineral mixture	0.5
6	Rice polish	8.4	Calcite	1.5
7	Mineral mixture	0.5	Common salt	1.5
8	Calcite	1.5	Urea	1
9	Common salt	1.5	Rice polish	9.4
10	Urea	1		

Typical raw materials - Maize, Groundnut De-oiled cake, De-oiled Rice Bran, Broken Rice, Rice polish, De-oiled Cotton Seed Cake, Molasses, mineral mixture, common salt, urea etc.

## STANDARD SPECIFICATIONS FEED

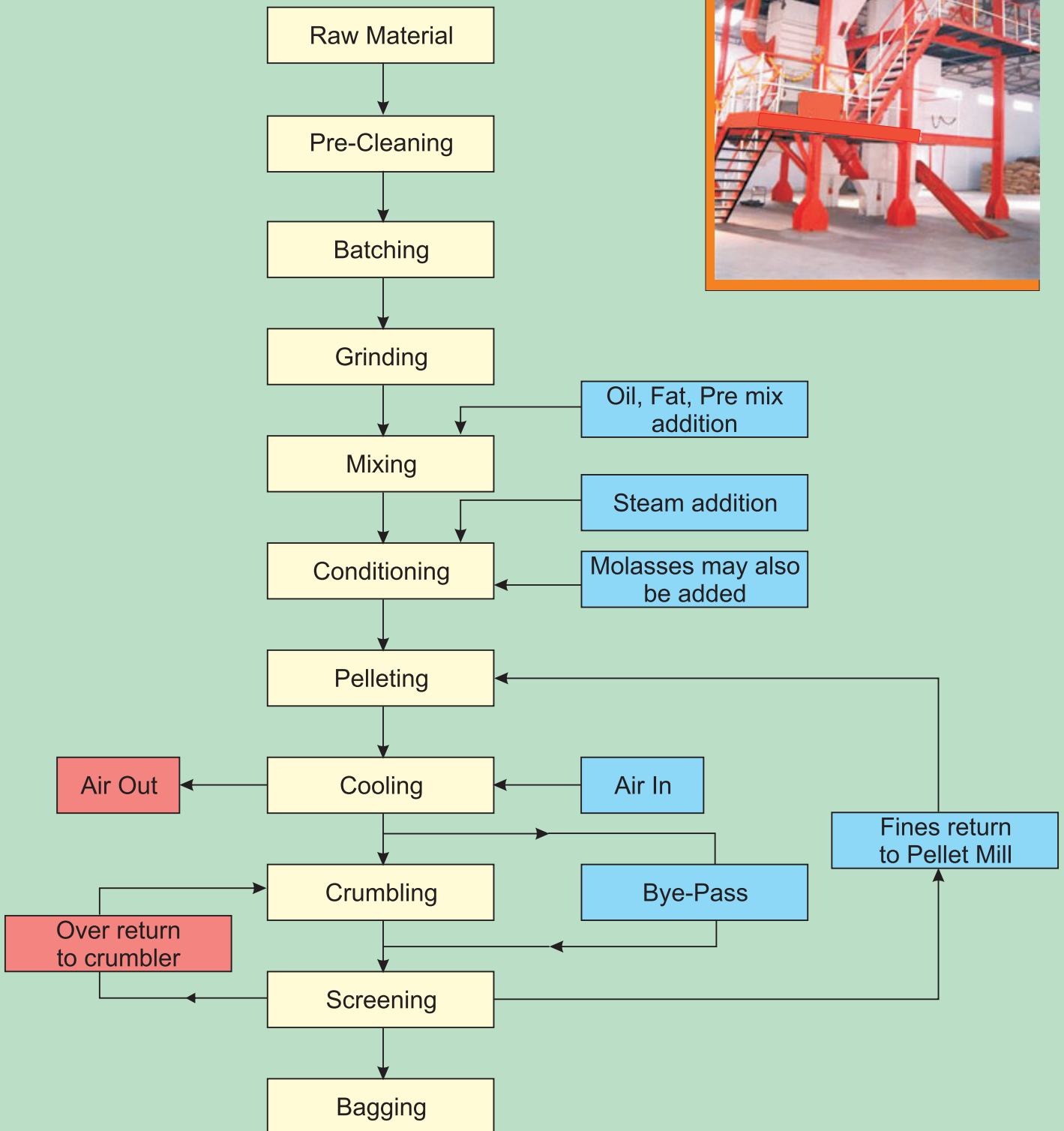
### Cattle Feed

Characteristics	Cattle (type 1)	Cattle (type 2)	Calf (starter)	Calf (grower)
Moisture Max %	11	11	10	10
Crude protein Min%	22	20	23-26	22-25
Ether extract Min%	3	2.5	4	4
Crude fiber Max%	7	12	7	10
AIA Max%	3	4	2.5	3.5
Salt Max% (as NaCl)	2	2		
Calcium Min% (as Ca)	0.5	0.5		
Available phosphorus	0.5	0.5		
Vitamin A (IU/Kg)	5000	5000		

### Poultry Feed

Characteristic	Broiler Starter	Broiler Finisher Feed	Chick Feed	Growing Chicken Feed	Laying Chicken Feed	Breeder Layer Feed
Moisture Max %	11	11	11	11	11	11
Crude protein Min%	23	20	20	16	18	18
Crude fiber Max%	6	6	7	8	8	8
AIA Max%	3	3	4	4	4	4
Salt Max% (as NaCl)	0.6	0.6	0.6	0.6	0.6	0.6
Calcium Min% (as Ca)	1.2	1.2	1	1	3	3
Available phosphorus Min%	0.5	0.5	0.5	0.5	0.5	0.5
Vitamin A (IU/Kg)	6000	6000	6000	6000	6000	6000
ME Min% (Kcal/Kg)	2800	2900	2600	2500	2600	2600

# PROCESS DIAGRAM OF CATTLE CUM POULTRY FEED PLANT



**MIXTURE**



**GRINDER HAMMER MILL**



**CRUMBLER**



**PALLET COOLER**



**PALLET MILL**





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with latest technologies and Related Forward & backward Integrations

- Oil Seed Processing Machineries
- Oil Mill / Crushing plant ( Expellers )
- Solvent Extraction Plants
- Vegetable / Cooking Oil Refinery Plants
- Cooking Oil Physical Refinery Plants
- Dry Fractionation Plants
- Winterization Plants
- Hydrogenation Plants
- Steric Acid Plants
- Vanaspati Plants
- Bakery Shortening & Margarine Plants
- Fat Distillation Plants
- Lube Oil Refinery
- Bio Diesel Plants
- Acid Oil Plants
- Effluent Treatment Plants
- Wax Extraction Plants
- Pilot Projects
- Laundry/Toilet Soap Plants
- Cattle / Poultry Feed

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- Incorporation of best of batch and continuous process.
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- Project Planning
- Erection & Commissioning.
- Piping, Electrical & Instrumentation.
- Basic Civil Construction.
- Utility Control.

### SPECIALITY EQUIPMENTS

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- Plate & Frame Filters
- Polishing Filters
- Heat Exchangers
- Knife Mixer
- Disk Mixer
- All Types Of Control Valves
- Material Conveying Systems  
( screw conveyor, bucket elevator,  
belt conveyor etc.)
- All Types Of Bellows & Covers
- Non IBR Baby Boilers

### FABRICATION

- Piping
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