Miguel Valls – Technical Service – *April 2012*

SPIN FEEDERS FOR REARING BROILER BREEDERS (Floor feeding)

The "Spin Feeder" system, which distributes pelleted feed on the floor using a spinning disc, has been used in several countries for many years, especially if daily feeding is practiced. The equipment is inexpensive and provides fast feed distribution and good flock uniformity.

Spin feeders are only suitable for rearing since during production the males and females must be fed separately. Good quality, hard pellets, usually based on wheat, are a requirement for the system. Soft pellets will break during distribution and the fine particles will be lost in the litter.

The advantages of the spin feeder system include:

- bird density per m^2 may be increased (up to + 20%)
- very flexible feed allocation so every pen can be fed the appropriate amount
- fast feed distribution, over a wide surface
- increased time for feed consumption
- lower feeding equipment cost
- no obstacles on the floor, easier bird circulation and rearing house organization (pens)
- easy cleaning at the end of the rearing flock and reduced turnround time

The requirement for pelleted feed may be regarded as a disadvantage because such feed is usually more expensive to manufacture and may limit the range of available raw materials.

The system runs properly only on dark rearing houses. The existing high density is better managed with low light intensities (3 to 5 lux). Higher intensity is only supplied during feed consumption time (around 1-2 hour per day) just to easily see the feed on the litter.

Coccidiosis vaccines are advised as the bird density in the house is high, and consequently it is the potential number of oocyst in the litter.

Stocking Density:

Farms equipped with spin feeding systems are capable of supporting higher stocking density than those with conventional layouts. Increasing the density to 10-12 birds/ m2 will allow a 1,000 m2 house to produce enough birds to fill 4,000 m2 of production space, so in 1,000 m2 it is possible to rear at least 20,000 birds per year.

Equipment Design and Installation:

There are many different makes and models and the following pictures show a practical example on a rearing farm.

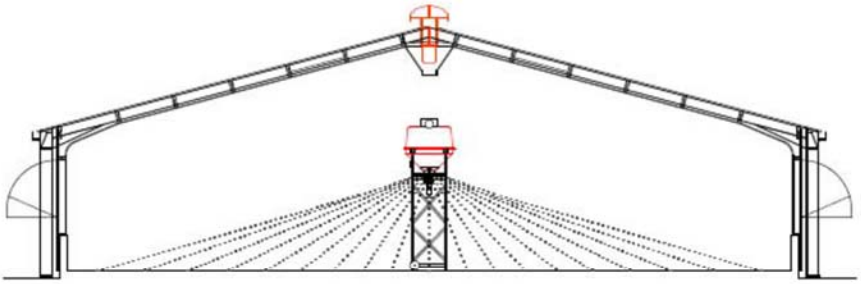
The system includes a centre-less flexible auger, fixed in the ceiling, to deliver feed from the bulk bin to the individual feeder hoppers. The feed can be weighed using either:

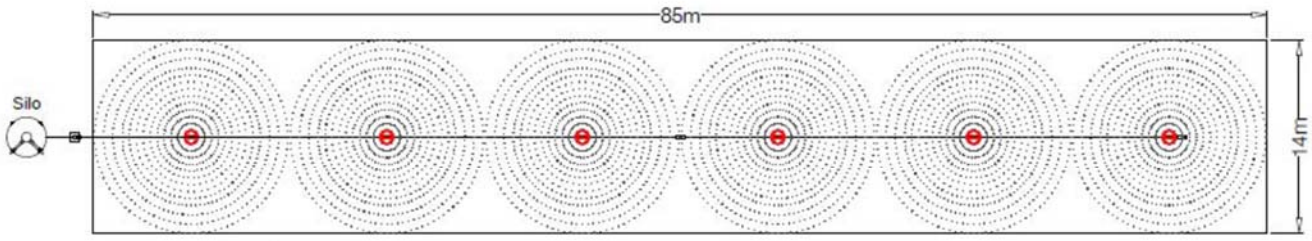
- Mechanical or electronic scales on each hopper;
- A central weigh station in the service room or at the point where the feed enters the house. The feed is then dispensed to the hoppers by the auger using either automatic or manual valves. Such systems can be

controlled using a computer based panel that will automatically deliver the set amount of feed to specific hoppers.

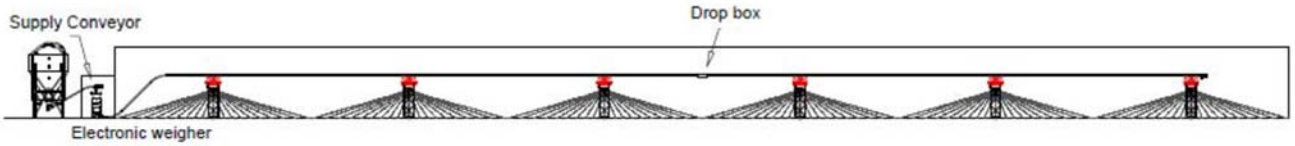
The amount of feed that is put in each spinner can be controlled so that different pens can be fed various amounts depending on the requirements of the birds. If there are no pens the same amount of feed must be placed in each hopper.

The majority of systems incorporate the option to control the diameter of the spin pattern. In the case of simple models this can be done by changing the size of the drive pulleys. Modern versions have direct drive motors that allow the speed of the disk to be automatically adjusted.





6 Spin feeders 14m Spread



The design of the disk is a point of difference between manufacturers. Cheaper models have a simple disk that may provide quick and even distribution, but often gives a donut spin pattern, with the feed falling in a band around the feeder. More sophisticated designs spread the feed evenly underneath and around the feeder.

The spinners are distributed along the house, and adjusted so as to spread a uniform layer of feed over the whole litter surface. They have to be regulated to make feed arrive comfortably to the side walls of the farm.

A good rule of thumb is to provide one spinner for every 1.500 birds. The cost of one spinner being low, it is best to have a good number of spinners with less feed per spinner to obtain faster and more uniform feed distribution (it is not advisable to exceed 1.800 birds per spinner).

Guide to Pictures:

1 Feed hopper / spinner.
2 Feed tube transporter along the house.
3 Individual hopper weighting system.
4 Motor.
5 Feed distribution disk.

Feed Quality and Pellet Hardness

The two main pellet characteristics to consider are:

- % of fine particles
- pellet durability

Fine particles can not be consumed by the chicken and will be lost in the litter. They can include important nutrients like calcium, so proper grinding and pelleting is essential to ensure they are incorporated in the pellets.

Wheat based feeds will produce good quality pellets and are more suitable for use with spin feeder systems. Maize can be used in feeds for spin feeding, but it is unlikely that the pellets will be hard enough unless a significant quantity of wheat is also included. Strategies to improve pellet hardness include feed formulation, grinding of raw materials, mixing and pelleting (correct steam temperature, longer die hole length and smaller diameter) as well as the inclusion of pellet hardeners.

Pellet hardness can be measured using a Holmen Tester, which tests durability by blowing a sample of feed through an angled tube and measuring the percentage of unbroken pellets (for a 3.2 mm pellet a 3 mm sieve should be used). A Holmen value of greater than 95% is needed.

The most common pellet size is 3.2 mm diameter and 8-12 mm length. Other diameters can be used, however; smaller pellets will break more easily and larger ones are more difficult to distribute uniformly.

Spin Feeder Management:

Spin feeders are usually installed in light proof rearing houses, where the controlled light intensity (3-5 lux) makes higher stocking density easier to manage. The light intensity is increased at feeding for up to 2 hours with conventional breeders to ensure that the birds can find the feed. Higher stocking density makes the use of coccidiosis vaccine advisable, especially as the birds are eating from the litter and the challenge may be increased.

The most critical period for spin feeder management comes at the time the flock must be trained to find the feed:

- Feed the flock a crumble on chick paper or in feeder pans for the first 7-10 days, ensuring that the flock is feeding and drinking normally.
- In the case where stocking density was temporarily increased before 28 days, to help with the process of training the flock to use the spin feeders, it will be important to rapidly come back to the recommended density – latest at 28 days of age, for instance on the occasion of flock grading
- Introduce short cut 3.2 mm pellets fed on the floor by hand. From 18 days of age begin distributing 10 to 15% of the feed through the spin feeder; spreading the rest on the floor in rows or on feeder pans.
- Increase the amount of feed put in the spin feeders over the next 3 to 5 days until all of it goes in the hoppers.

A standard pellet can be used from 21 days of age. The procedure is the same for pellets of different diameters:

- 12 days for 2,8 mm. Ø
- 18 days for 3,2 mm. Ø
- 22 days for 3,5 mm. Ø

Good monitoring of the feeding system and of bird feeding behavior by the flock manager is required during the transition period. Spin feeder system allows the practice of daily feeding, but feeding programs with non-feed days (eg 5 feed days: 2 non-feed days or 4 feed days: 3 non-feed days) can be used to maximize flock uniformity.