

Management of a Large Commercial Rabbitry

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The following is an outline of the management practices used to manage a large commercial rabbitry. These are not meant as a guide on how to raise rabbits, but to explain things I have found to be successful in my operation. In any operation, the bottom line is the profit produced and I found the following management practices to be profitable.

My Background

I have raised rabbits since I was 8 years old, but didn't become commercially interested until I went to graduate school at Oregon State University. I went to Oregon State in 1981 on a Carnation Albers scholarship to study rabbit nutrition at the Rabbit Research Center. Since the day of my arrival at OSU I have had a commercial herd of rabbits from as small as 30 does to as many as 1600. The facility I will be describing had housing for 1000 does with litters plus holding for juniors and dry does. I say had, currently our herd spread into three facilities, two large barns with 500 doe cages each and several small A-framed sheds that have 200 doe cages for a total of 1200 does cages.

Building Structure

The main herd was kept in a 400' by 40' turkey brooder house with a dirt floor. The roof had a gable vent running the length of the barn and the bottom four feet of the sidewalls was plywood siding with the upper four feet covered with chicken wire. There were curtains that could be rolled up to cover the chicken wire in order to regulate the barn's environment. Ventilation was accomplished on mild days by lowering the side curtains and on hot days by a series 48 inch fans in pairs spaced evenly starting 100 feet from the north end of the barn with the last set placed in the south wall. This allowed for a tunnel effect (with the curtains raised) bringing fresh air in from the north end and exhausting it to the south. The fans were only used if the barn temperature exceeded 80° and above 90°, high-pressure foggers were used to provide further cooling. The barn had no insulation and was not airtight enough that either cool cells or a water wall would have been effective without extensive modifications to the building.

Cages

Does within a week of kindling or with litters were housed in 30" X 36" X 14" welded wire cages with drop nest boxes. The cages were top loading and suspended from the ceiling with the tops approximately 42" off the floor. There were 800 doe cages in the main barn along with 40-buck cages (24" X 30") and 500 junior/dry doe holding cages (16" X 30"). Most of the doe and all of the buck cages were hung from the ceiling in three back-to-back rows down the length of the barn. The sidewalls contained 80 doe cages and the holding cages in a single row. There were two pass throughs approximately 1/3 of the way from each end of the barn. We had an excess number of holding cages to grow animals for sales to research laboratories. The doe cages had drop nest boxes consisting of a wire basket (16" X 10" X 8" deep) that was permanently attached to the cage in the front opposite the

feeder. Prior to kindling, a plywood nest box with a hardware cloth bottom was inserted into the wire basket. The wood nest boxes were ½ to ¾ inches shorter in length and width than the wire baskets, but a full 8” tall. This was to facilitate the easy removal of the nest boxes. The hardware cloth was 1/8th inch mesh to hold bedding in while providing for drainage. This wire mesh also facilitated cleaning the nest boxes with a power washer.

Breeding

Does were bred on a 39-day breed back. The 39-day breed back was chosen after reviewing the results of Patton (JARR) and running for a year with half the animals in our facility on an 11-day breed back and the rest on a 39-day. A 39-day breed back was chosen for the following reasons;

- 1) Does last longer on the 39-day cycle. Only half as many replacements were required for the 39-day (50% replacement rate) system compared to the 11-day (100% replacement rate). When the cost of raising replacements was compared to the cost of feeding a producing doe on the 39-day breed back, there is a cost savings in keeping does producing rather than relying heavily on replacements.
- 2) Fryers kept with the does until 9 weeks averaged a half a pound more than fryers weaned at 4-5 weeks and raised separate from the doe. There is a 20% reduction in mortality also noted in fryers on the 39-day breed back.
- 3) With the caging system in place, a 39-day breed back also allowed for more animals to be produced per cage. On the 11-day breed back, 1/3 of the doe cages have to be set aside to raise the weaned fryers while on the 39-day breed back, all the doe cages house breeding does. Using our production records from the one-year comparison, the 11-day breed back (0.8 fryers/doe/week) would produce 428 fryers per week while the 39-day (0.6 fryers/doe/week) would produce 480 fryers per week from the same cages.
- 4) Finally there is the advantage of only handling the fryers at 9 weeks where they were either moved to the holding cages for replacements/research sales or sent to the processor. With the 30 X 36”cages, the 39-day breed back provided the most efficient use of caging.

Chores

Chores were allotted to different days of the week as follows:

Day	Chore
Monday	Palpating
Tuesday	Breeding
Wednesday	Nest boxes in
Thursday	Breeding
Friday	Pull and wash nest boxes
Saturday	Market fryers/clean cages
Sunday	Open

Besides the above chores, kindling occurred Friday through Monday.

Breeding Management

In the main barn, does were grouped according to the week of mating. Thus on the first week, cages 1 through 80 would be bred followed by cages 81 through 160 the next week. Does were bred two days a week; the eighty previously designated cages were bred on Tuesday. On Thursdays, any does that wouldn't breed on Tuesday were returned to the bucks and an additional group of does in the holding cages were bred. The number of additionally bred does depended on the time of year and the number of does in the 80 designated cages that had litters. During the Spring, we breed 15 to 20 extra juniors each week and in the Summer months we breed 25 to 35 extra juniors. This was to adjust for the change in conception experienced at different times of the year. During the months of January to May, conception rates average 95% dropping to 70% for does bred in June through August and then climb to 80-90% conception from September to December with a mean conception of 85%.

Does were palpated 11 to 13 days after mating. We palpated on Mondays and does bred on Tuesdays were 13 days and those on Thursdays 11 days post mating. Does without a litter (juniors or dry does) that palpated negative were moved to the group to be bred that week while does with litters that palpated negative were evaluated. Does palpated negative and showing no outward symptoms to account for their lack of conception (skinny, mastitis or other disease condition) were bred with the next group of does. Any doe showing symptoms were either treated or, as happened in most cases, tagged for culling when the litter was weaned. Does that lost a litter and also showed no outward symptoms that would preclude them from conceiving were also moved into the next group to be bred. Our goal was to have all eighty cages each week with a litter, so breeding extra does was necessary.

Bucks were in cages located at the two pass through spaces with the cages hung back-to-back. There were forty bucks so each buck was used at least twice on Tuesdays and some were bred again on Thursday. Bucks usually weren't used more than three times a week.

The rabbits

The herd consisted of Pasteurella free rabbits. These animals were obtained in 1990 and the initial population consisted of 550 females and 50 males for which no pedigrees were available. With an unknown parentage, one concern was that inbreeding could lead to a decreased fitness of the herd. In an attempt to limit the inbreeding and start pedigrees, the rabbits were randomly split into 5 artificial lines consisting of approximately 100 does and 10 bucks each. The five lines were numbered 1 to 5. To facilitate breeding while avoiding the potential problems of inbreeding, matings were made by using bucks from one line to breed does of another line (except for line five which was purposely inbred). The breeding plan was to use bucks of the next lowest line to breed does, that is, does of line four were bred to line three bucks, line three does to line two bucks and in the case of line one does, they were bred to line 4 bucks. Bucks and does produced by a mating were assigned their sires line number, hence line four does would produce replacement stock for line three since the sire came from line three. This ensures that no brother-sister matings would take place (although mother-son occurs to a limited extent) and that four generations were needed before the mixing of genes from two lines could happen. I am not sure this is the best or only way to handle the situation we started with, but after 9 years we are still using the artificial lines and mating system is still successful.

Records

Records were kept on a computer using a spreadsheet program. We are currently using Microsoft Excel. A new spreadsheet is generated for each week and all chores are handled on a weekly bases

(nest boxes are put in on Wednesday for does whether they were bred on Tuesday or Thursday). Excel allows the merging of spreadsheets to enable the sorting of records to produce individual doe or buck reports. It also allows for generating weekly reports. The records kept were matings (doe and buck ear numbers), palpation and conception, number of kits born and number born alive and then we took 9 week litter size and weights. Since the 21-day and 56-day weights have a relatively high correlation, I see no reason to weigh the animals twice. We did adjust for litter size when comparing weights.

Feeding

Rabbits were hand feed everyday. A cart capable of holding 300 pounds was used to transport feed up and down the isles. I feel that the time spent individually hand feeding is the most important daily contact you can have with your rabbits. Most problems with breeding does first are exhibited as a decrease in appetite. When a doe that is heavy into lactation leaves feed in the feeder, this is a signal to examine the doe. We use full feeding of does with 21 plus day old litters and a modified full feed for dry does and does during the first 21 days post partum. That is, we give does only the amount they will consume in a 24 hour period. Basically, feeders are only about half full from the time a nest box is put in until they are removed at which time the feeders are filled.

The does with a nest box (just prior to kindling through 21 days of lactation) were feed a high protein (20%) alfalfa based diet. Fryers, dry does, juniors, bucks and lactating does past 21 days were fed a lower protein (17%) higher fiber (18%) diet. The diets were switched abruptly when the nest box was either put in or removed from the cage. The high protein diet was also higher in energy and lower in fiber, so care was taken to limit the fryers from consuming it. While the 20% protein is a more costly feed, the bulk of the feed used was the 17% so the average price of using the two feeds was close to the price of the 17% diet. The two feed system did show an advantage over feeding either diet alone. Feeding the high protein diet lead to an increased incidence of diarrhea in the fryers while feeding just the 17% decreased the doe's ability to produce milk.

Maintenance

Manure was manually removed every two weeks. Actually, one half the barn was cleaned each week. For the size and layout of the barn, the most cost efficient method of manure removal was a shovel and wheel barrow. As for cleaning cages, cages were burned to remove hair as needed, this happened more frequently in the fall and winter due to the fog and humidity causing an excess accumulation of hair on the cages. Between litters, cages and nest boxes were power washed and then an appropriate disinfectant was applied. The nest boxes were washed on an outside rack that allowed the boxes to be exposed to sunlight as an added measure of disinfecting.