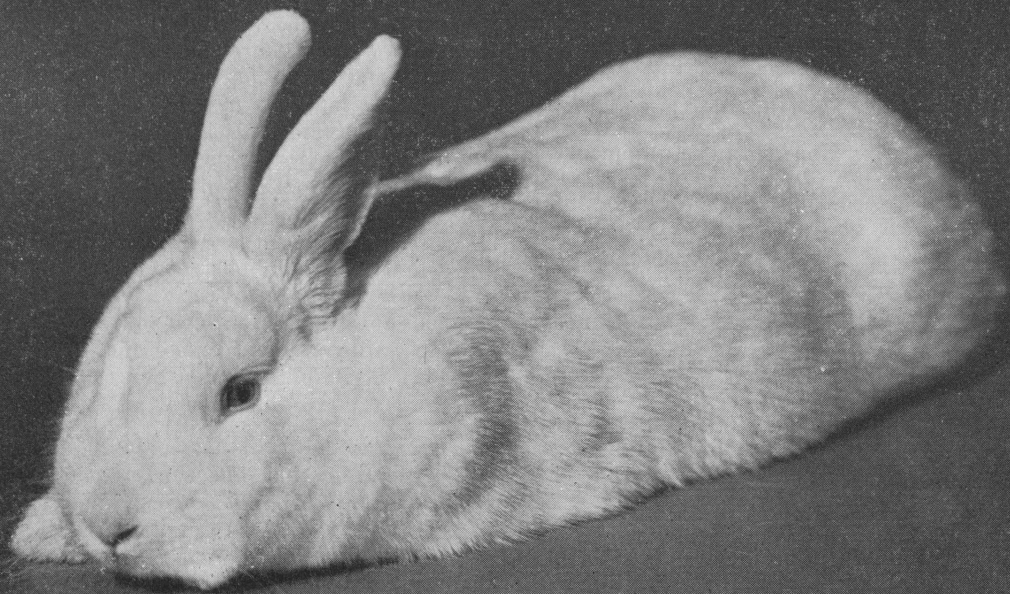


RABBIT RAISING

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RABBIT RAISING

By

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Introduction

Raising domestic rabbits for meat rapidly is becoming an important industry in Texas. While rabbit production in the state does not yet compare with that of some areas in the United States, the annual production of fryer rabbits is definitely on the increase. About 400,000 pounds of dressed fryer rabbit meat was produced in the immediate trade territory of one North Texas town during 1949. With the continued growth of cold storage locker plant facilities, co-operative marketing of fryer rabbits in volume will result.

Rabbits can be produced in a small space and with inexpensive equipment. They can be raised on the back lot where space is limited or they may be raised out on farms. With the medium and large meat breeds it is possible under good management for one rabbit doe to produce three and sometimes four good litters per year or a total of 35 to 50 pounds of dressed fryers.

The rabbit enterprise may range from one or two hutches for home

meat supply to large commercial units involving several hundred hutches. Rabbits make fine animal projects for Boy Scouts, Future Farmers, and 4-H Clubs. Principles in breeding, feeding, and management of livestock can be learned in rabbit production. There is a degree of pride connected with ownership and the boys and girls are often further inspired through their club exhibits and rabbit shows.

Selecting A Breed

For the production of meat for home or for market, select a breed among the medium weight or larger types. There are 62 recognized breeds of rabbits, ranging in size from 6 pounds for adult rabbits among some of the fancy breeds, to 11 pounds for medium and 16 pounds for some of the heavy meat breeds. The medium breeds are most popular for production of meat.

The best breed of rabbits for any individual is often that breed preferred by the particular individual. Among the popular meat breeds in Texas are New Zealand

This bulletin is based largely upon the research findings of the U. S. Rabbit Experiment Station, U. S. Department of Agriculture, Fontana, California.

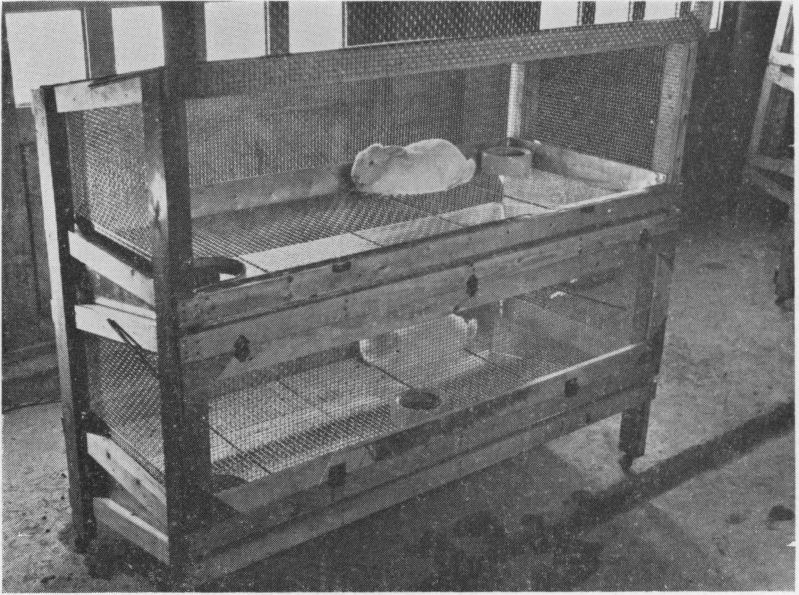


Figure 1. Double deck inside type rabbit hutch.
(Courtesy Larro Research Farm)

Whites, New Zealand Reds, Chinchillas, Checker Giants, Flemish Giants, Champagne De Argents, and the Californian. The Californian, a very popular breed on the west coast, appears to be gaining much favor in Texas. There are many other good breeds which one may select. For marketing purposes, clubs or communities may find it desirable to specialize on one breed. Breeding stock can be obtained from reliable breeders in Texas and other states. Texas A. and M. College has no rabbits for distribution.

Selecting The Foundation Stock

Mature animals or young rabbits, just weaned, may be used as

a start. The beginner may start with one young male and two or three young females or the start may be made with one or two bred does.

The beginner should start on a small scale and grow into the business. Only strong, vigorous animals with excellent breed type should be used for breeders.

To insure against introducing diseases, new stock should be isolated in separate quarters for observation for a week or ten days before releasing into the rabbitry.

Housing And Equipment

The two-doe rabbit hutch is recommended for back-yard rabbit production. Ten to fifteen square feet of floor space is need-

ed for each doe and her family. There should be adequate space for the doe and litter until the lit-

ter is weaned or ready as fryers. It is important that plenty of floor space is provided.

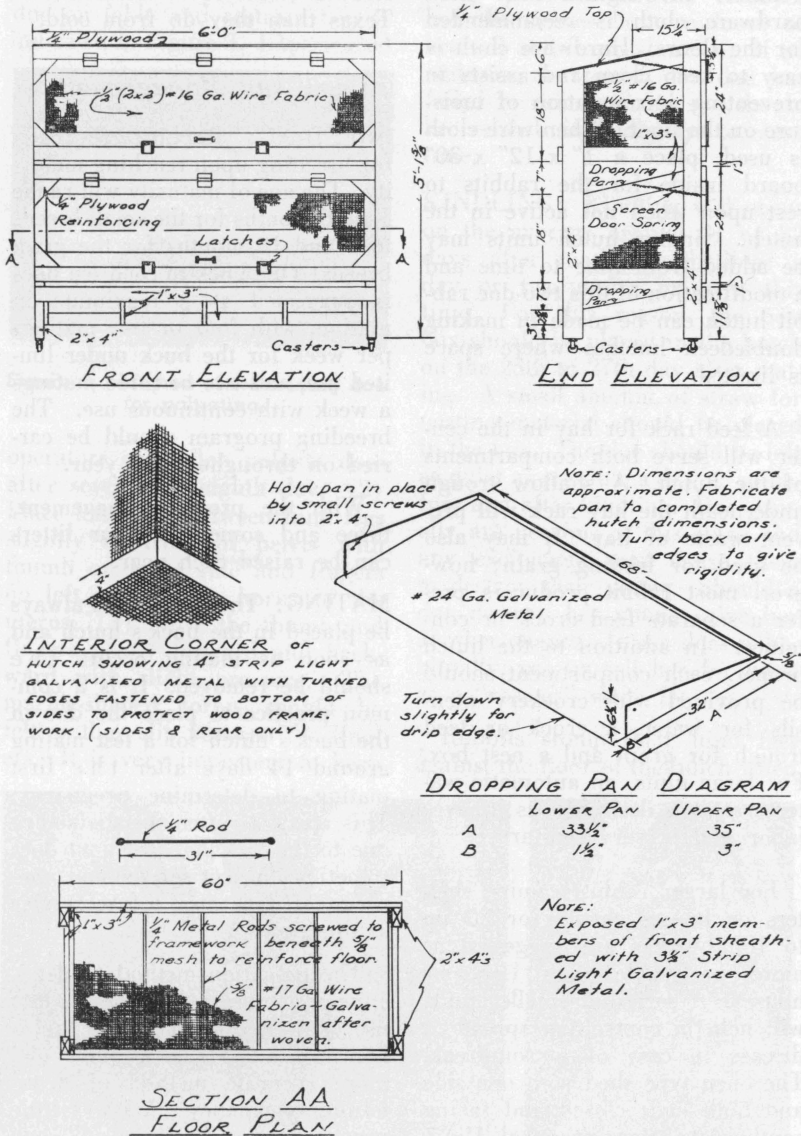


Figure 2. Details on double deck inside type hutch. (Courtesy Larro Research Farm)

This type of hutch is easily cleaned and can be moved around under shade trees during hot weather. Five-eighths inch mesh hardware cloth is recommended for the floors. Hardware cloth is easy to keep clean and assists in preventing accumulation of moisture on the floor. When wire cloth is used, place a 1" x 12" x 30" board inside for the rabbits to rest upon when not active in the hutch. Similar hutch units may be added from time to time and a modification of this two-doe rabbit hutch can be made in making doubledeck hutches where space is limited.

A feed rack for hay in the center will serve both compartments of the hutch. A shallow trough underneath the hay rack will prevent waste of hay. It may also be used for feeding grain; however, most rabbit producers prefer a separate feed crock or container. In addition to the hutch proper, each compartment should be provided with crockery utensils for water, a crock or feed trough for grain and a nest box. For large units, an automatic water system is desirable, as it saves labor and is very sanitary.

For larger rabbitry units, shelters or houses caring for 50 up to 100 hutches are suggested as more preferable than larger houses. A series of smaller units will help in controlling spread of disease in case of an outbreak. The open type shed with one side and both ends closed and facing southward is very practical. Hinged drops on closed side and ends should be provided for ventila-

tion. These drops may be opened during the summer and closed during extreme winter weather. Rabbits suffer more from heat in Texas than they do from cold.

Care And Management

BREEDING: Rabbits are ready for breeding upon reaching maturity. The age of maturity will range from 6 months for the small breeds to 9 and 12 months for the giant breeds. One buck to each ten does is suggested as a maximum in mating, with four or five matings per week for the buck under limited use, and two or three matings a week with continuous use. The breeding program should be carried on throughout the year.

With the proper management, three and sometimes four litters can be raised each year.

MATING: The doe should always be placed in the buck's hutch and as soon as mating occurs she should be removed. It is a common practice to place the doe in the buck's hutch for a test mating around 14 days after the first mating to determine pregnancy. This check is often unsatisfactory due to the fact that pregnant does sometimes accept service and non-pregnant does may refuse service at this time.

The palpation method to determine pregnancy is fast coming into use as a time saver in the breeding program. It is a quick and more accurate method of determining pregnancy. With a little practice, even a beginner will soon become expert in the use of this method. The following steps and

key points are suggested in palpating does: (1) Fourteen to sixteen days after mating place the doe on table and restrain her as indicated in Figure 3. Experienced

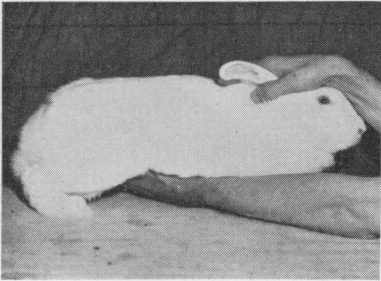


Figure 3. Method of restraining doe for palpating.

operators can often palpate does after seventh or eighth day. (2) Place left hand between hind legs slightly in front of pelvis with thumb on right side and fingers on left side of the horns of the uterus. (3) Move the thumb and fingers gently forward and backward with slight pressure. The marble-shaped forms should be felt as they slip between the fingers. It is very important to keep

the doe quit and relaxed during this procedure. Do not exert too much pressure on the embryos lest the tissues be torn loose or bruised and cause abortion. If no embryos are found, the doe has failed to conceive and she should be rebred immediately to save time.

KINDLING: Kindling will occur on the average around 31 or 32 days after mating, sometimes a day or two under or over this time. For this reason, the nest box should be placed in the hutch on the 25th to 27th day after mating. A small amount of straw for nesting material should be placed in the box. The doe should be left as quiet as possible a day or so before and after kindling. Does usually are nervous at this stage and any excitement may cause them to destroy their young. Should a doe destroy her young, give her another chance. If she does it habitually, use or sell her for meat as a "roaster" when fat.

Rabbits stomp their hind feet against the floor of the hutch when

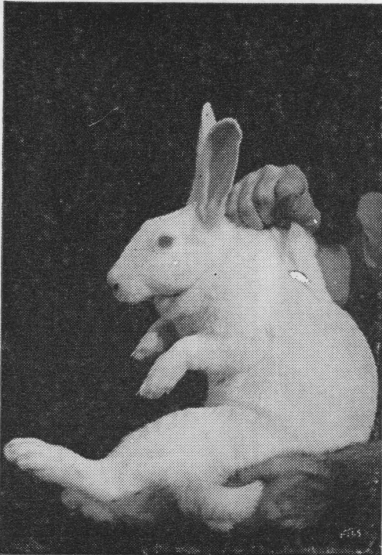


Figure 4. Specimens with digestive tracts removed. Left, non-pregnant doe; center, embryos at end of 10-days pregnancy, and right, embryos at end of 14 days of pregnancy.

Courtesy U.S.D.A.

excited. The presence of stray dogs, cats, snakes or varmints during the night may cause the mother rabbit to become excited. In leaping into and out of the nest box and in giving her stomping distress signal, she sometimes flattens out her tiny young in the nest. Highly nervous and habitual stompers may be culled out from time to time.

THE YOUNG: Six to eight young to the litter are usual; however, there may be as many as 10 to 12 to the litter. In such cases the litter may be reduced to 7 or 8 of the strongest, most vigorous prospects. The litter surplus may be given to another doe kindling too small a number around the same date. Does with small litters without additional transfers may be bred 30 to 42 days after kindling in order to save time.



Courtesy U.S.D.A.

Figure 5. Proper way to lift a medium weight rabbit.



Courtesy U.S.D.A.

Figure 6. Proper way to lift and carry a heavy rabbit.

Twenty-four hours after kindling quietly inspect the nest to remove any improperly developed or dead young. Then leave the doe and litter undisturbed as much as possible for several days. The young should be left in the hutch with the doe until they are at least eight weeks old. By this time they should weigh 4 pounds or more and be ready for use or for market.

HANDLING RABBITS: Rabbits should be handled with care. See pictures showing the proper ways to carry rabbits to insure against injury. Rabbits should not be carried or held by the ears.

Feeding

Rabbits can be fed a variety of home grown grains and legume hays. They prefer whole grain in the following order: oats, wheat, grain sorghums, barley, and rye.

Whole corn is not recommended as the rabbits are inclined to eat

only the kernels and waste the rest of the grain. If corn is used, it should be fed in the form of meal. Where grains in the mixture are fed in ground form, the meal should be slightly dampened to facilitate feeding and prevent waste. Grains may be mixed pound per pound and interchanged.

A good legume hay should be kept before the rabbits in the hay manger of the hutch at all times. For many sections of Texas this practically means alfalfa hay. Alfalfa hay is one of the best hays to feed; however, sweet clover, kudzu, lespedeza, cowpea, vetch and peanut hays are good. With legume hays, the green colored, leafy and fine stemmed hay is best.

Chop the hay into short lengths to prevent waste. The grain and alfalfa may be supplemented with root and vegetable crops, such as the roots and tops of turnips, carrots, radishes, and sweet potatoes. Tender green lawn clippings are often fed. The vegetables should be sound and fresh; otherwise do not use them for feed. Vegetable crops should not be allowed to accumulate in the hutch and become moldy.

Exercise care in feeding the green crops. Start gradually and feed as a supplement to and not to replace the regular grain and legume hay ration. If this is done gradually, no digestive disturbances are apt to occur.

DRY DOES AND HERD BUCKS: Keep legume hay before them. Feed at regular intervals the quan-

tity of grain they will consume in approximately 30 minutes. The frequency of feedings will be dependent on the condition of rabbits.

DOE AND LITTER: Keep feed, both grain and legume hay, before them at all times. Feed the amount of grain and protein supplement that will be consumed and cleaned up daily. Avoid an accumulated carry-over of the grain mixture to insure against contamination.

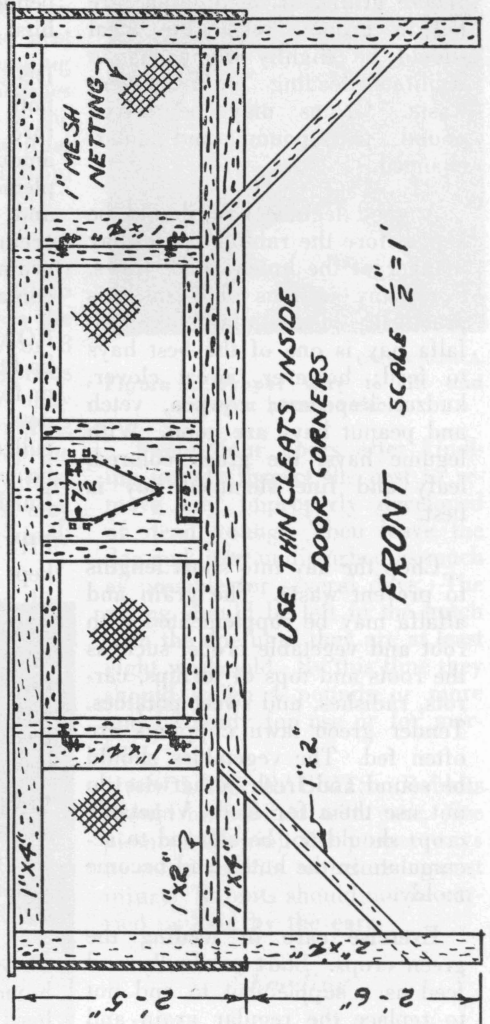
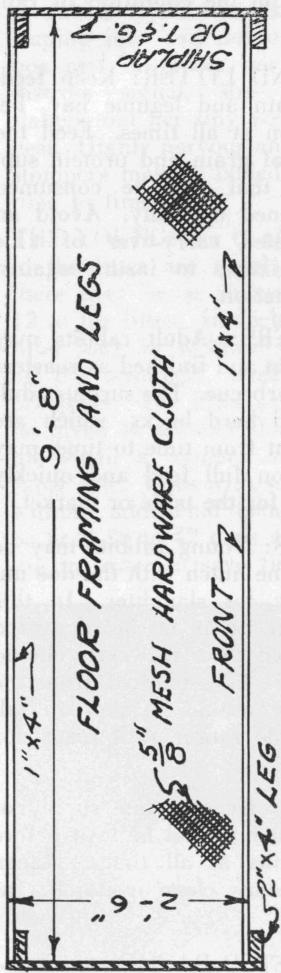
ROASTERS: Adult rabbits may be fed out and finished as roasters or for barbecue. The surplus adult does and herd bucks, which are culled out from time to time, may be put on full feed and quickly finished for the table or market.

FRYERS: Young rabbits may be kept in the hutch with the doe until ready for slaughter. In this way there is no let down caused by any change. However, should the fryers be separated from the doe, they should be kept on full feed, same ration until ready for use.

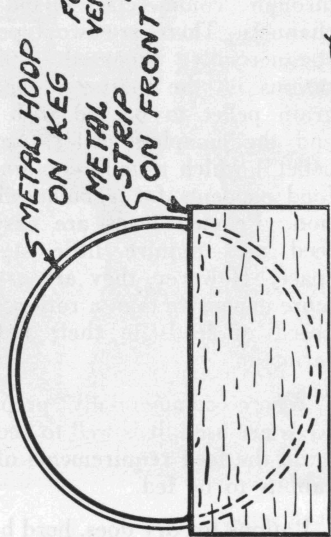
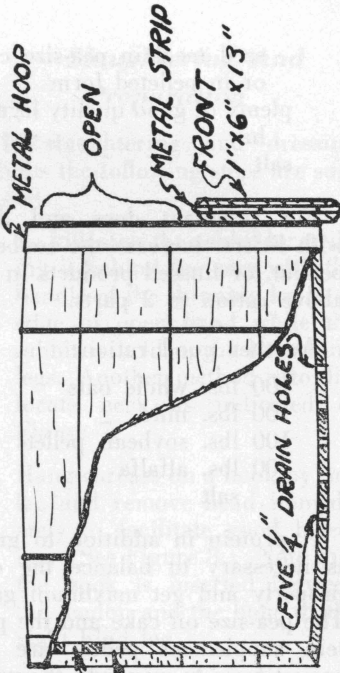
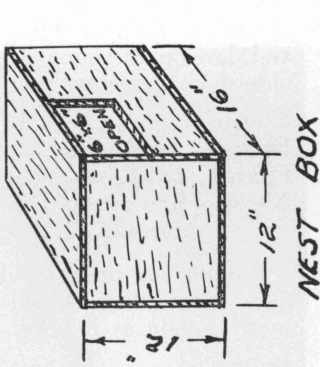
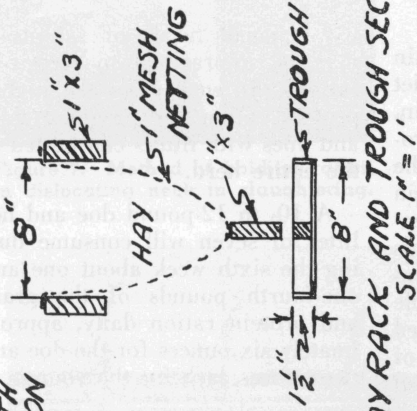
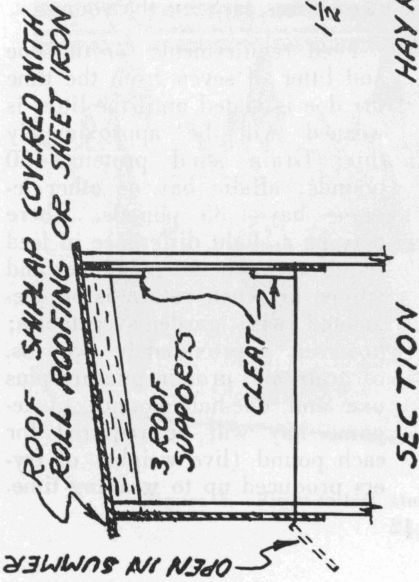
WATER: An adequate supply of clean water should be kept before the rabbits at all times. Clean water means clean containers as well.

SUGGESTED RATIONS: A good home-mixed ration for dry does, herd bucks and developing bucks and does can be mixed as follows or fed in separate compartments of self-feeder:

- 2 parts whole oats or barley
- 2 parts whole wheat or milo
- 1 part soybean, peanut, or lin-

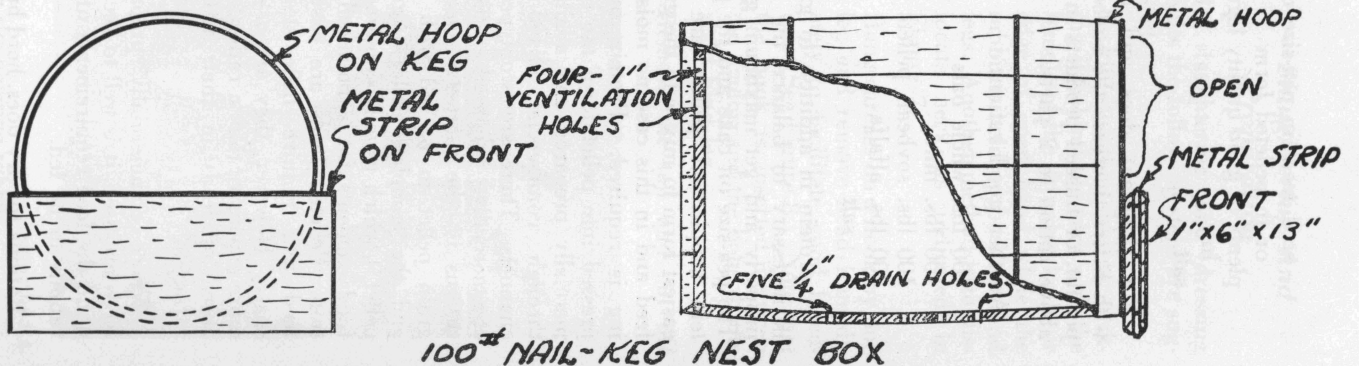
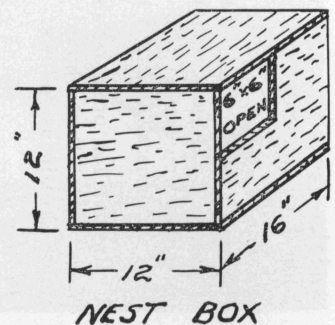
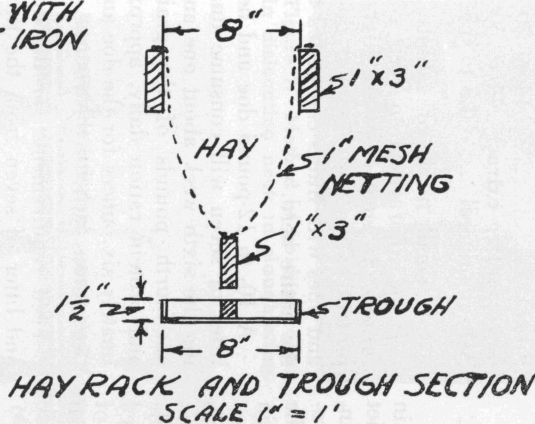
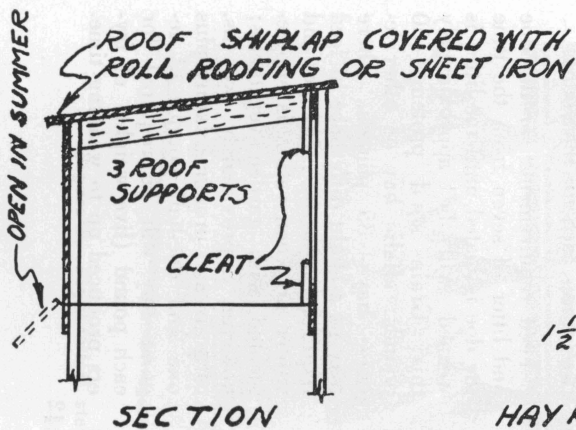
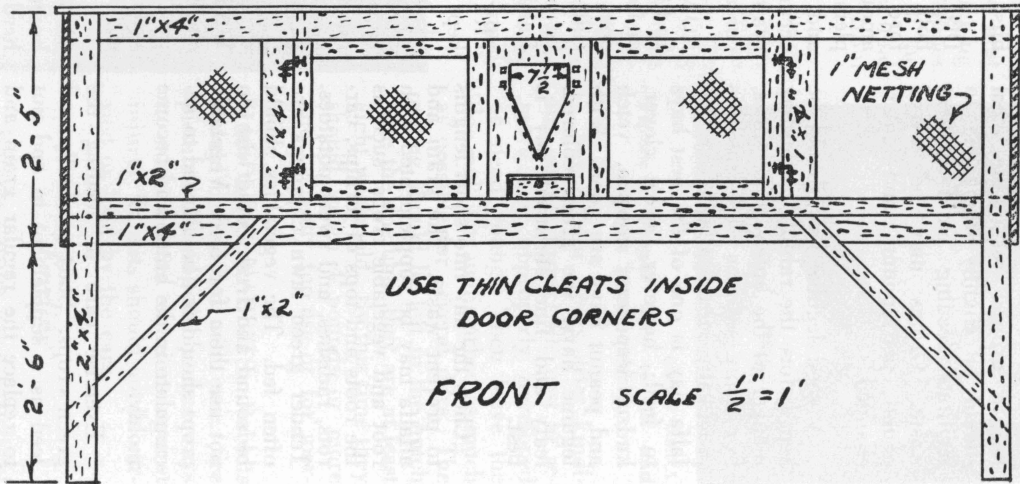
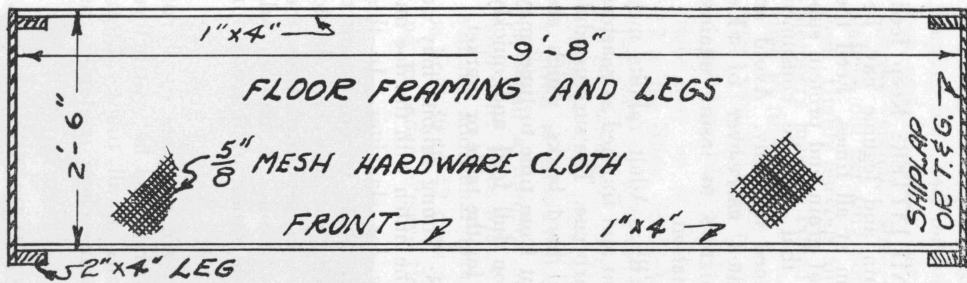


TWO DOE RABBIT HUTCH



100# NAIL-KEG NEST BOX

TWO DOE RABBIT HUTCH



seed meal in pea-size cake
or in pelleted form
plenty of good quality legume
hay
salt

For pregnant does and does
with litters, increase the soybean,
peanut, or linseed products in the
above ration to 2 parts.

Another good ration:

100 lbs. whole oats
100 lbs. milo
100 lbs. soybean pellets
300 lbs. alfalfa
salt

A protein in addition to grain
is necessary to balance the diet
properly and get maximum gain.
The pea-size oil cake and the pro-
tein supplement pellets are the
easiest form to mix with the grain
feed and in this case no moisten-
ing is required. Protein meals
pressed into pellet form are com-
mercially prepared and available
through commercial mixed-feed
channels. There are two types of
commercially prepared pelleted
rations on the market—the all-
grain pellet to be fed with hay
and the complete pellet (“green
pellet”) which usually contains all
food elements for a balanced ra-
tion. Pelleted feeds are easy to
feed and require little storage
space. However, they are usually
more expensive than a ration com-
posed of feeds in their natural
form.

Where commercially prepared
feeds are used, it is well to keep in
mind the feed requirements of the
rabbits to be fed.

Rations for dry does, herd bucks

and developing young should pro-
vide these elements:

Protein	12 to 15%
Fat	2 to 3.5%
Fiber	20 to 27%
Nitrogen-free extract	43 to 47%
Ash or mineral	5 to 6.5%

Rations for pregnant does and
does with litters should contain
more protein as follows:

Protein	16 to 20%
Fat	3 to 5.5%
Fiber	14 to 20%
Nitrogen-free extract	44 to 50%
Ash or mineral	4.5 to 6.5%

For small herds of rabbits it
may be impractical to feed two
rations. In such cases the higher
protein ration for pregnant does
and does with litters can be fed to
the entire herd.

A 10- to 12-pound doe and her
litter of seven will consume dur-
ing the sixth week about one and
one-fourth pounds of the grain
and protein ration daily, approx-
imately six ounces for the doe and
two ounces each for the young.

Feed requirements for the doe
and litter of seven from the time
the doe is mated until the litter is
weaned will be approximately
this: Grain and protein—50
pounds; alfalfa hay or other le-
gume hay—35 pounds. There
may be a slight difference in feed
requirements between summer and
winter or when ration is supple-
mented with garden vegetables;
however, approximately two lbs.
of grain and protein mixture plus
one and one-half pounds of le-
gume hay will be required for
each pound (live weight) of fry-
ers produced up to weaning time.

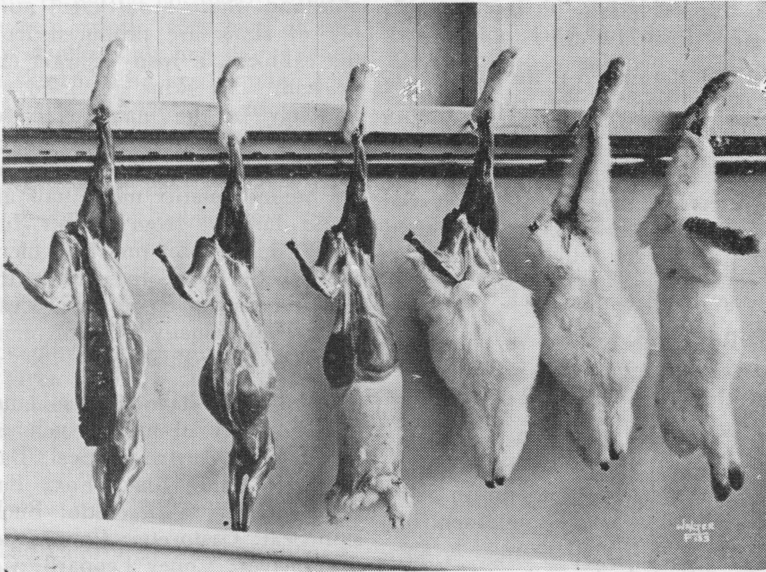
Slaughtering And Preparation

In slaughtering and dressing rabbits the following steps are suggested:

1. To kill, stun the rabbit by striking it behind the ears with the handle of the skinning knife or edge of open hand while the rabbit is held up by both hind legs. Another method is to dislocate neck as indicated in Figure 7.
2. Hang carcass on a hook by one leg and remove head immediately to facilitate good bleeding. (See Figure 8.) Note that the hook is inserted between the tendon and the bone of the right hind leg.
3. Remove the tail and cut off



Figure 7. Method of holding rabbit in dislocating neck in slaughtering.



Courtesy U.S.D.A.

Figure 8. Right to left, steps in slaughtering rabbits.

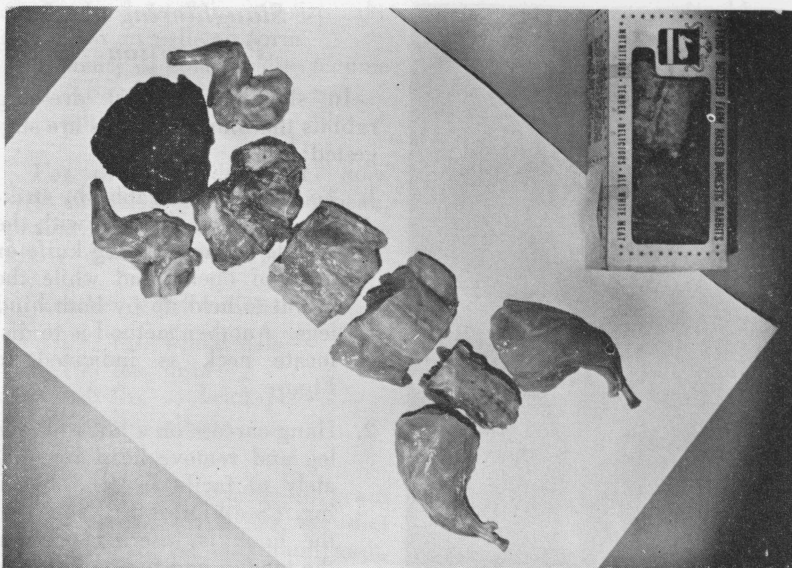


Figure 9. One method of cutting up fryer rabbits and suitable containers for carcasses.

- the feet from the tree legs at the hock and knee joints.
4. Slit the skin on the inside of hind legs to the root of the tail and remove the skin by slipping it off flesh side out.
 5. Remove the entrails, but leave the liver in place.
 6. Remove the other hind leg by severing at the hock.
 7. Rinse the carcass in cold water, not more than a few minutes.
 8. Cut meat in pieces as indicated in Figure 9. Place meat in refrigerator or wrap in cellophane or other container for storage in cold storage locker until ready to use.

SKINS: Rabbit skins are valu-

able and where a sufficient number of skins are produced from the rabbitry, a ready market can be had. The skins are used extensively in the manufacture of furs and fur garments, as well as in the felting industry. Some of the highest quality men's hats are made largely from rabbit fur. Solid white rabbit furs lend themselves better than others to dyeing into the various colors in processing. They usually sell for more than the colored skins.

Rabbit furs have been sold under a variety of names such as: Arctic Seal; Australian Seal; Baffin Seal; Baltic Black Fox; Bay Seal; Beaverette Bluerette; Buckskin Seal; Castorette; Coney; Coney Beaver; Coney Leopard; Coney Seal; Ermiline; French Mole and many others.

As a by-product of meat production, the income from pelts will assist in defraying the cost of the business. It will pay to remove properly the skins when dressing rabbits.

Shapers for skins can be made of No. 9 galvanized wire 4 feet to 5 feet long, depending on the size of the rabbits. A thin board shaper may also be used. This shaper should have dimensions as follows: For fryers—board 24 inches long and 7 inches wide at one end and tapering to 4 inches wide at the other end. For large rabbits weighing ten pounds or more, the dimensions of shaper should be 30 inches long x 9 inches at base x 4 inches wide at narrow end. Place the skin on shaper while still warm. Have the flesh side out with the fore part over narrow end of board. Remove all wrinkles but do not overly stretch the skin. Both front legs of the skin should be on one side. Fasten the skin of hind legs to wide end of shaper with clothes pins. Hang up in shade away from flies until thoroughly dry. Do not dry in the sun or by artificial heat. If dried skins are to be stored, they should be sprinkled with naphtha flakes and packed in tight box. Do not salt rabbit skins that are to be marketed. Directions for packaging and shipping skins will be given gladly by the pelt buyer or commercial concern making the purchase.

Diseases

The control of diseases among domestic rabbits is more often a matter of prevention than cure.

With strong, healthy foundation stock in the beginning and with continuous strict sanitary precautions, little trouble should be had from diseases. Before introducing new stock to the rabbitry, it should first be isolated until observations can be made as to healthy condition.

SANITATION: Clean and disinfect hutches, water crocks and feed utensils at frequent, regular intervals. The nest box should be cleaned thoroughly and treated with disinfectant solution between litters. It may be necessary to clean nest box and replace with new nest material by the time the young rabbits have reached sufficient size to make a change. To clean utensils, scour and wash in soapy water to which a disinfectant solution has been added. After washing in disinfectant solution, all vessels should be rinsed in clean water and sunned if possible. Chlorine and cresol solutions are often used as disinfectants. Ordinary lye water is economical. Take additional precautions in handling disinfectant solutions to protect members of the family and visiting children. The rabbitry has quite an attraction for children of the neighborhood.

SORE HOCKS: Sore hocks often are the result of bruises caused by rabbits stomping their feet in wet filthy hutches. Heavy rabbits are more apt to have this trouble. The cause is usually a mechanical one and wire floors that sag or have rough spots should be replaced with a smooth floor until the trouble has disappeared. Smooth boards may be placed over the

wire floor temporarily. In extreme cases the rabbits may be placed in a pen or well drained clean sod to facilitate healing. Clean and disinfect hutches regularly and allow them to dry; soak affected parts of rabbit in warm soapy water, remove crusts and dry thoroughly. Apply carbolated vaseline, zinc ointment or iodine ointment every other day. Use ointments very sparingly lest more harm than good be done through collection of dirt on feet of animals.

SORE EYES: Usually caused from infection in filthy hutches. Clean and disinfect hutches. Wash eyes with boric acid water. If sores occur around the eyes, apply a good ointment, using great care to keep it off the eyelids.

EAR MANGE OR EAR CANKER: Ear mange is caused by small mites which irritate the skin around the outer and in the inner parts of the ear. Crusts and scabs are often found inside the ear.

Symptoms—excess moisture on the inner surface of the ear; nervousness and twitching of the head and neck (wry neck) may follow in advanced stages.

Treatment—simple and effective, if done in the early stages. Remove all scales and crusts as suggested under treatment for sore hocks and apply the following: One part iodoform and ten parts of ether; 25 parts cottonseed or olive oil. Camphorated oil is recommended also.

SKIN MANGE: Skin mange is

caused by mites similar to ear mange.

Symptoms — reddened, scaly skin, hair inclined to fall, and evidence of itching by scratching or biting. Yellowish crusts of dried blood serum may be present.

Treatment—wash affected region with warm, soapy water, clip hair back to healthy skin, and apply mixture of one part flowers of sulphur and three of lard. Repeat treatment as required.

Prevention—clean and disinfect hutches and isolate affected animals so as not to contaminate others.

RINGWORM: Ringworm is highly contagious. It is caused by a fungus or moldlike organism.

Symptoms — usually starts on head with patches of scaly skin with red, pinhead formations around base of hairs. May appear on hind feet or other parts of the body. Evidence of itching may occur in advanced stages.

Treatment—clip or shear one-half inch outside affected area. Wash with warm, soapy water, dry and apply tincture of iodine. Use gloves and clothing that can be boiled or destroyed after handling affected animals. Use care to avoid infection of hands or face. Isolate animals and disinfect hutches.

MUCOID ENTERITIS (SCOURS, DIARRHEA OR BLOAT): Mucoid enteritis or bloat may affect rabbits of all ages regardless of sex, but it is more common among the young, during the first 6

months. Observations indicate that it is not infectious but the exact cause is not known at present.

Symptoms—lack of appetite; thirst; eyes squint; dull, rough fur coat; grinding of the teeth; abdomen often bloats.

Treatment—no very effective treatment known. Remove all feed and water for approximately 48 hours. Then feed small quantities of green vegetables for several days. Allow only small quantities of water during this period to prevent over-drinking. After a week, start affected rabbits on limited rations of alfalfa hay at first, then gradually add grain mixture.

FUR-EATING HABIT: Rabbits sometimes eat their own fur or the fur of other rabbits in the hutch. Fur-eating is most apt to be caused by the ration being inadequate in quality or quantity. This sometimes may be caused by the protein content being too low. In such cases, increase the amount of legume hay and soybeans, peanuts or linseed to the ration.

LONG TEETH (BUCK TEETH): Usually inherited, but sometimes the result of injury.

Symptoms—upper incisors curl back and lower ones protrude.

Treatment—none. Fryers may be carried through marketable size by trimming teeth with side cutting pliers. Save no breeding stock from rabbits showing long teeth.

LIVER COCCIDIOSIS: Caused by

a microscopic one-celled animal parasite.

Symptoms—usually none, except white, circular spots on liver. In some cases the liver may be enlarged enough to be felt in living animal.

Treatment—none. Mild cases often clear up. Extreme cases are fatal. Use care in handling affected animals to prevent spread of the disease through the rabbitry.

INTESTINAL COCCIDIOSIS:

Caused by one of four common one-celled animal parasites which multiply in the lining of the intestine of domestic rabbits.

Symptoms—mild cases, none except on microscopic examination of droppings or intestinal contents of wall of intestine. More severe cases may show up with diarrhea, loss of flesh, hunched position, and little interest in food. "Pot belly" on recovery.

Treatment—usually none. If reinfection does not occur, the disease runs its course in four or five days up to 10 to 14 days. Resistance is often developed by the individual animal with no symptoms shown, even though the animal may contract the disease again. Drug control, though possible to some degree, is not considered practical.

Rabbit Manure Is Valuable

Rabbit manure is a good fertilizer for flower beds, the vegetable garden and for the orchard. There will be little loss of chemicals and best results are obtained when the manure is applied im-

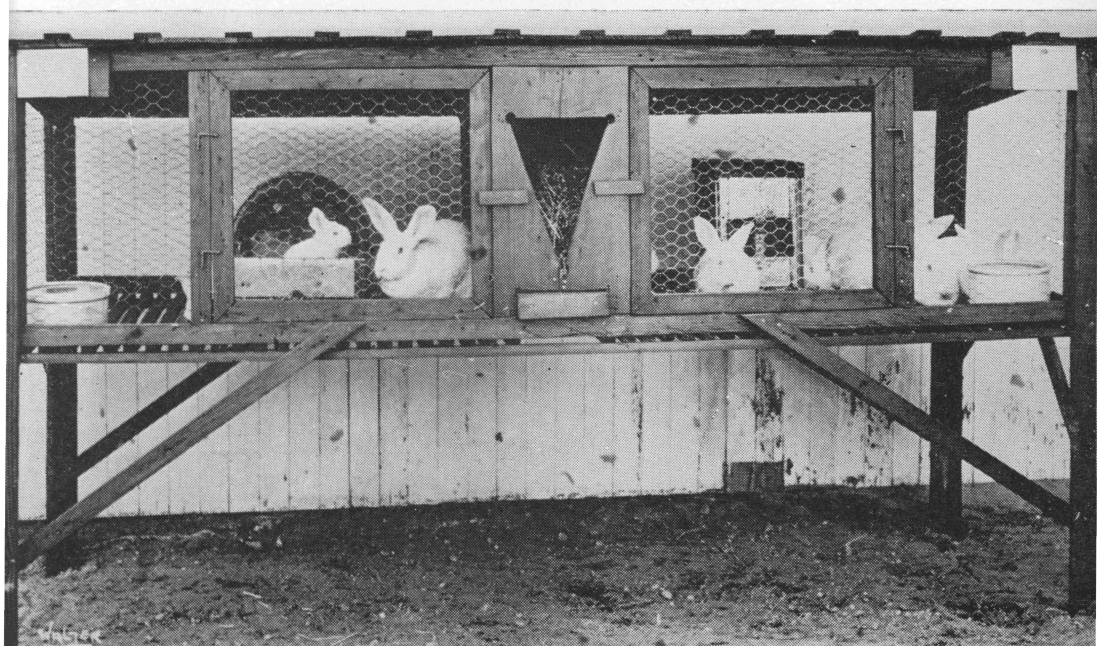
mediately and directly into the soil. Where it is not convenient to do this from day to day, a compost heap is recommended.

A good compost heap can be made by placing alternate layers, 3 to 12 inches in thickness, of manure and refuse vegetation such as lawn and hedge clippings, and hay leaves. A covered bin or a pit should be provided for this purpose. Sufficient water should be added occasionally to keep the heap moistened but not too wet.

The heap should be packed down from time to time to exclude excess air. A thin layer of soil over the compost heap will aid in conserving the nitrogen and in keeping down objectionable odors. Should excess heat occur as evidenced by smoking, fork up the heap and add more water. It is best to provide a covered bin or pit for this heap as the full value of the fertilizer will be retained where it is not exposed to weather and where leaching is prevented.

Approximate Fertilizing Constituents (in Percentages)
in Different Animal Manures

Kind	Water	Nitrogen	Phosphoric Acid	Potash
Rabbit -----	4.70	2.57	1.42	0.48
Horse -----	59	0.70	0.25	0.77
Dairy Cattle -----	79	0.57	0.23	0.62
Fattening Cattle -----	78	0.73	0.48	0.55
Sheep -----	64	1.44	0.50	1.21
Swine -----	74	0.49	0.34	0.47
Hen -----	55	1.00	0.80	0.39



courtesy U.S.D.A.

Two Compartment Rabbit Hutch.
(See Plans, page 12).

