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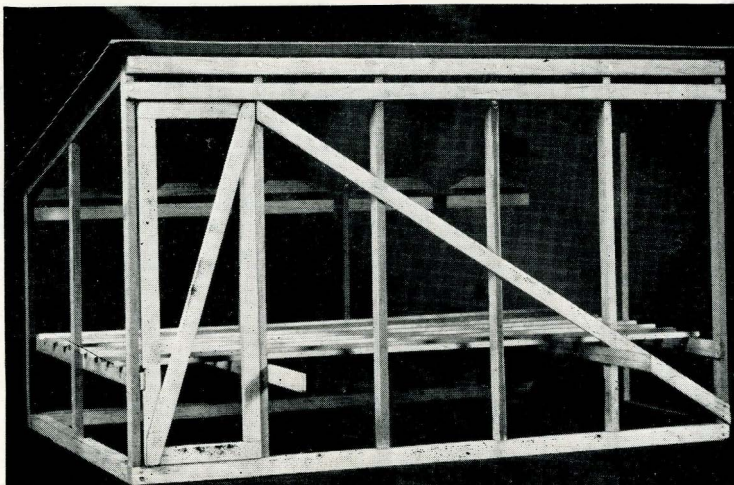
JUNE, 1946

Range Shelters, Feeders, Waterers for Poultry

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Agricultural
EXTENSION SERVICE
S. D. State College, U. S.
Dept. of Agriculture
Cooperating



No Substitute for Clean Range

One of the best ways to successfully grow poultry is to get them out on green range away from the farm buildings. This reduces the danger of disease.

In order to care for poultry away from the buildings, simple equipment, in addition to regular housing and equipment, is needed.

Easily transported shelters, feeders and water fountains are needed.

This publication by Mr. Boyd and Mr. Esmay describes, pictures and gives working drawings for building such equipment.

A clean range is ground on which there has been no poultry nor poultry manure for at least one year. It is entirely disease-free.

ACKNOWLEDGEMENT

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RANGE SHELTERS, *Feeders and Waterers for Poultry*

By J. ERVIN BOYD AND MERLE ESMAY

No Substitute for Sunshine And Plenty of Green Feed

There are probably no adequate substitutes for sunshine and succulent green feed for reducing the costs of feeding, keeping poultry in good health, promoting proper growth of bone and feather and developing good pullets for laying.

Grasses and legumes in the early stages of growth contain relatively much more protein than in the later stages of growth. They are also rich in vitamins and will tend to balance and correct the deficiencies of proteins in the cereal grains fed to poultry.

Young Birds Should Be Separate from Old

One of the greatest drawbacks to successful chicken raising on most farms in South Dakota is allowing the adult birds to mingle and run with the growing stock. This is particularly objectionable when both old and young birds roam the barnyard together or are restricted to bare yards. In many cases, the adult birds transmit diseases of various kinds to the growing chickens. Also, the old yards are very liable to become badly contaminated with organisms of disease and with the eggs of intestinal roundworms and tapeworms. Chickens infested with roundworms and tapeworms do not grow well and some may die. Losses from disease and intestinal worms are frequently very high.

Separate Turkeys From Chickens

Another bad practice on many farms in our state is allowing turkeys to mingle with chickens. Blackhead, one of the worst diseases from which turkeys suffer, may be transmitted from chickens to turkeys although the blackhead organism apparently does not cause high mortality among infested chickens.

Diseases and parasites losses can be combated by clean range and isolation. One of the most effective ways to combat losses from disease infection and parasitic infestation among growing chickens is to raise them on clean range, isolated from adult chickens and from turkeys. Turkey growers who raise their poults on range should keep them isolated from the adult turkeys and should provide them with clean range.

Alfalfa Best Poultry Pasture

Because of the wide variation in South Dakota climate and rainfall, poultry raisers might talk with their county agents for more information on pasture grasses.

Alfalfa heads the list for a permanent pasture for poultry. Turkeys thrive on it. It is highly nutritious and is rich in protein, carotene (vitamin A) and calcium, especially in the early growing stage. Alfalfa leaves contain about three times as high a percentage of protein as the stems. One has to be careful about mowing the alfalfa too often or it will be killed. Perhaps three to four mowings are sufficient. The shelters should be moved at least every two weeks to keep from killing out the stand.

Sweet clover is a good substitute for alfalfa, although it grows coarse in midsummer, if not clipped. It furnishes good shade also. Our wheat grasses as, western wheat, crested wheat (Fairway strain), are good. They come on very early in the spring, and by frequent mowing during the summer, provide good green feed. When the fall rains come, the wheat grasses "green up" and are again succulent and good. Brome grass is equally as good. A mixture of brome and alfalfa makes wonderful pasture. Cow pasture makes good range for pullets. The cows keep the grass well eaten off, making available a constant supply of young, tender, green growth.

Balanced rations of grower or laying type feed, together with homegrown grains such as oats, corn, wheat or proso should be given the chickens at all times. Also a constant supply of clean, fresh water should be before the birds.

Developing and Maintaining A Good Pasture

In order that poultry may derive the greatest benefit from pasture plants, they must be succulent, palatable, kept in growing condition throughout the various seasons, and have good nutritional value. Succulence and palatability are of prime importance, otherwise the birds will consume but little of the greens.

The kind of poultry pasture you will have on your farm may vary with your soil, location, your farmstead, etc.

Annual Forage or Pasture Crops

Where yards or fields have become badly contaminated with disease organisms and eggs of internal parasites, growing cereal grasses or other forage crops is one of the best ways to treat the soil. Turning the soil up to the sun tends to rid it of infection.

Oats, wheat, rye, barley, rape, corn, soybeans or similar crops can be sown at different intervals throughout the spring and summer to maintain a constant supply of green feed. Oats seem to be relished more by poultry than the others. Plant oats early in the spring, planting four to six bushels per acre in order to provide an abundance of succulent pasture. It would be well to add four to six pounds of rape in with the oats as rape is an excellent green feed and will come on in the fall.

Another field, adjacent to the oat field should be sown to corn, soybeans or sorghum about the middle of May. Plant about two bushels of soybeans to the acre in rows so that the birds can walk down between the rows and pick off the leaves. Use the leafy varieties. Corn may also be planted for pasture. It will provide shade and you could also put rape in with the corn.

Sudan grass is also an excellent crop for the hot summer months. Plant it the latter part of May, at the rate of 60 to 75 pounds

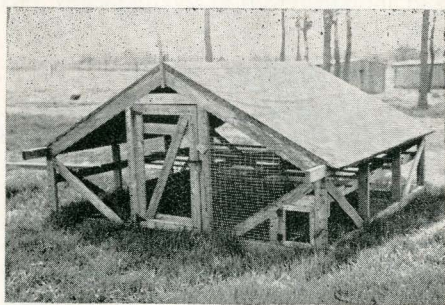
to the acre, and pasture when a stand is well established. It is a good plan to clip this to keep it from getting coarse. Clip it quite high.

Getting your flock of pullets out on clean range and green pasture is important for the following reasons:

1. Reduce feed costs from 10 to 20 per cent.
2. You can raise healthier birds, because:
 - a. Helps in reducing infectious diseases and parasitic infestation.
 - b. Helps to keep young pullets away from old birds.
 - c. Prevents crowding, supplies additional housing at low cost and prevents overheating in hot summer months.
3. Low in cost, easily moved.
4. Permits the use of brooder house for second brood after first one is moved to shelter.
5. Adequate shelter provides necessary protection against storms and yet assures ample ventilation.

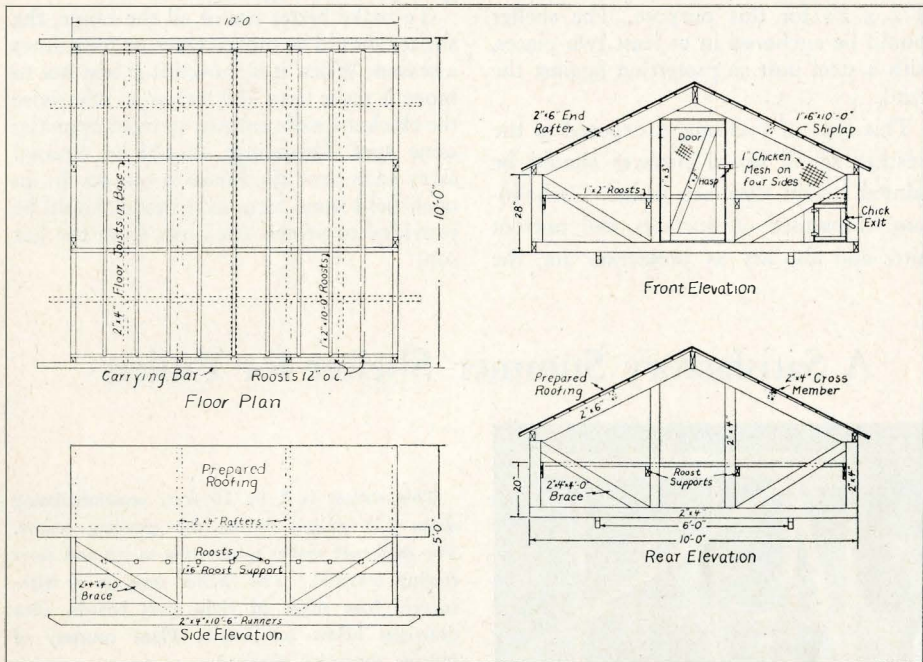
How to Use the Poultry Range Shelter

Chickens well-feathered and birds 8 to 12 weeks of age are ready to be placed on the range, providing weather conditions are satisfactory. It is well to separate pullets from the cockerels when they are from 6 to 8 weeks of age. One acre of pasture should be provided for each 200 birds and a separate shelter should be planned for each 125 pullets.



The summer range shelter

South Dakota Type Summer Range Shelter



This type shelter, 10 by 10 feet in size, furnishing shelter and protection for 125 to 150 mature pullets, is being used at the South Dakota State College Poultry farm. It is easily moved and with proper care will last a long time. Blue Prints available from State College department of Agricultural Engineering.

South Dakota Poultry Range House

Bill of Material

Number	Size	Length	Remarks	Number	Size	Length	Remarks
2	2" x 4"	10½ ft.	Runners	1	1" x 2"	4 ft.	Chick exit
2	2" x 4"	12 ft.	Carrier bar	18	8"	10 ft.	Shiplap
13	2" x 4"	10 ft.		2	4"		Hinges
12	2" x 4"	8 ft.				100 sq. ft.	1" chicken mesh
3	2" x 6"	12 ft.				120 sq. ft.	Prepared roofing
2	1" x 6"	10 ft.	Roost supports	6	8d		Wire nails
9	1" x 2"	10 ft.	Roosts	10	16d		Wire nails
2	1" x 3"	8 ft.	Door	4			Small Staples

Before moving birds from the brooder house, "harden them off" in the house by opening the windows for several days before transferring them to the shelter. A good pasture should be established on the range and ready for the birds before they are moved.

To protect the birds against coyotes, skunks and other enemies, an electric fence with two charged wires will do the job or you may use a good tight woven wire chicken fence. The shelter doors should be closed at night.

If the weather is cool, the backs and sides of the shelter may be covered with wall board, muslin, burlap or old sacks.

In making the shelter, "chicken mesh" wire (one-inch 12½ gauge) is used, or if obtainable, use welded wire, four inch by one inch. Lighter wire, 20 gauge, may be used for sides and ends. Corrugated galvanized iron, 26-gauge, is best for the roof. However, old or used lumber, covered with building paper, makes a satisfactory roof.

Bill of Material

LUMBER

5	pieces	1 x 8	—	10	feet
9	"	1 x 4	—	8	"
1	"	1 x 3	—	12	"
1	"	1 x 3	—	8	"
9	"	1 x 4	—	10	"
2	"	1 x 4	—	12	"
11	"	2 x 4	—	10	"
1	"	2 x 4	—	18	"
8	"	1 x 2	—	10	"
1	"	1 x 2	—	12	"

HARDWARE

Wire netting (inch mesh)

22 lineal feet—48 inches wide—No. 18 or 19-gauge wire (floor); 24 lineal feet—48 inches wide—No. 20-gauge wire (front & ends); and 14 lineal feet—24 inches wide—No. 20-gauge wire (rear frame and front door).

Galvanized iron corrugated roofing

5 pieces 108" x 26"—1¼ corrugation—26-gauge; 2 lb. zinc coated or lead headed nails—1½ inch.

MISCELLANEOUS HARDWARE

- 3 lb. cement coated No. 6 box nails
- 1 lb. No. 8 common nails
- 1 lb. half-inch poultry wire staples
- 1 pair 3-inch tight-pin butt hinges with ¾ inch screws
- 1 four-inch hasp—with ¾ inch screws (one which folds back to cover screws is preferable)
- 1 gallon of paint
- 2 doz. corrugated nails for front door

FLOOR BASE

- 3 pieces—1" x 8"—10 ft. (front, center and rear).
- 2 pieces—1" x 8"—10 ft. (ends and scraps for exit door).
- 4 pieces—1" x 4"—8 ft. (floor joists).
- 1 piece—1" x 4"—8 ft. (corner cleats).
- Corner posts—2 x 4-inch material from rafter waste.

Cutting Plan of Lumber

FRAMING

Sills

- 2 pieces—1" x 4"—10 ft. (front and rear)
- 2 pieces—1" x 4"—8 ft. (ends)

Studding

- 3 pieces—2" x 4"—10 ft. (front)
- 1 piece—2" x 4"—8 ft. (ends)
- 2 pieces—2" x 4"—10 ft. (rear)

Top Braces—front and rear

- 4 pieces—1" x 4"—10 ft.

Diagonal brace for front

- 1 piece—1" x 4"—10 ft.

Rafters

- 6 pieces—2" x 4"—10 ft.
- 2 pieces—1" x 4"—10 ft. (cross member)

Carrying Bars

- 2 pieces—1" x 4"—12 ft.

Perch Supports and end braces

- 2 pieces—1" x 4"—8 ft.

Perches

- 8 pieces—1" x 2"—10 ft.

Front Door

- 1 piece—1" x 3"—8 ft. (sides)
- 1 piece—1" x 3"—12 ft. (top, bottom and brace)

End Doors

- For exit door, use scraps or 1" x 8" from floor base ends
- 1 piece—1" x 2"—12 ft. (guides)
- For cleats use waste from 1 x 3—12 ft. piece of front door
- Use waste from rafter for 2 x 4 block

Four Men Can Move Shelter Easily

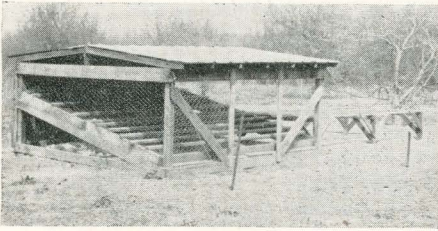
The shelter should be made of light material to make moving easier and to reduce cost. In our plan there are two carrying-bars by which four men can easily carry the house. If desired these carrying-bars can be attached to the studdings nearest the center and one man at front and one at the back could carry the house for short distances. When man power is limited it may be desirable to either build the floor base on 4 x 4 inch pieces or similar lumber and then with the tractor or horse power, it can be pulled to any spot.

Summer shelters may also be used for housing the young breeding males, when the size of the poultry enterprise justifies it. While these shelters are designed mainly for summer use, they may be used at other times for surplus breeding males, for special breeding pens and for other purposes.

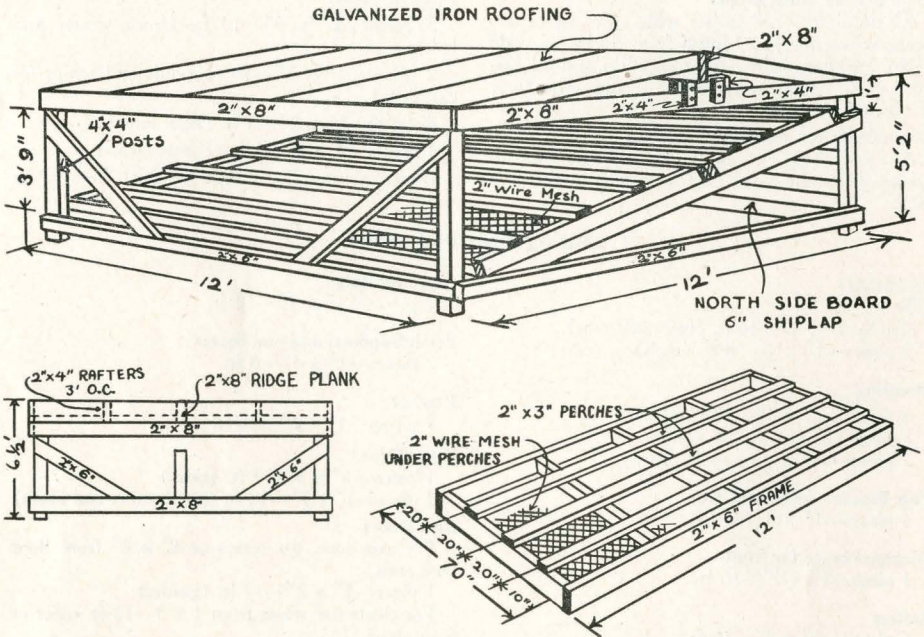
If the ground is not level, when placing the shelter, it should be blocked up, and boards used to keep the chickens from getting under and scratching in the droppings.

Don't forget to fasten your shelter down, in case of storms coming and blowing it over. A steel post, or iron stake on west and north driven well into ground is important.

Turkey Range Shelter



This shelter will provide protection against sun, rain, snow and hail. The east and west sides should be screened or boarded up to prevent birds getting into the droppings and preventing side winds. At least the west should be boarded and the east may be screened. The front or south is left open for entrance. Woven wire attached to front corners and fanned out will make it easier to drive the birds into the shelter. Two-inch by three-inch perches 20 inches apart are recommended. This is used at State College.



BILL OF MATERIALS

Range Shelter
 4 posts 4" x 4"-5'-2"
 4 planks 2" x 8"-12'
 4 planks 2" x 6"-12'
 1 ridge plank 2" x 8"-12'
 10 rafters 2" x 4"-6'2"
 3 roost braces 2" x 6"-12'
 4 end braces 2" x 6"-6'
 Galvanized roofing 150 sq. ft.

8 pieces shiplap 6"-12'
 Nails

Roosts for Range Shelter
 (1 section)
 12' 2"-mesh-6' poultry wire
 2 ends 2" x 6"-5'6"
 2 sides 2" x 6"-12'
 3 roosts 2" x 3"-12'
 3 braces 2" x 6"-5'6"

A Feeder Is Necessary For Birds on Range

A constant feed supply is necessary for all poultry if they are to make satisfactory growth and gains. When birds are placed on the range away from the buildings, it is necessary to provide a feeder. So all birds

may eat at any time, five feet of feeder space are necessary for each 50 birds.

A covered feeder will protect the feed from rain, sun and wind, insuring pullets plenty to eat regardless of the weather and avoids waste. A large feeder will make it unnecessary to refill so often. Feeders

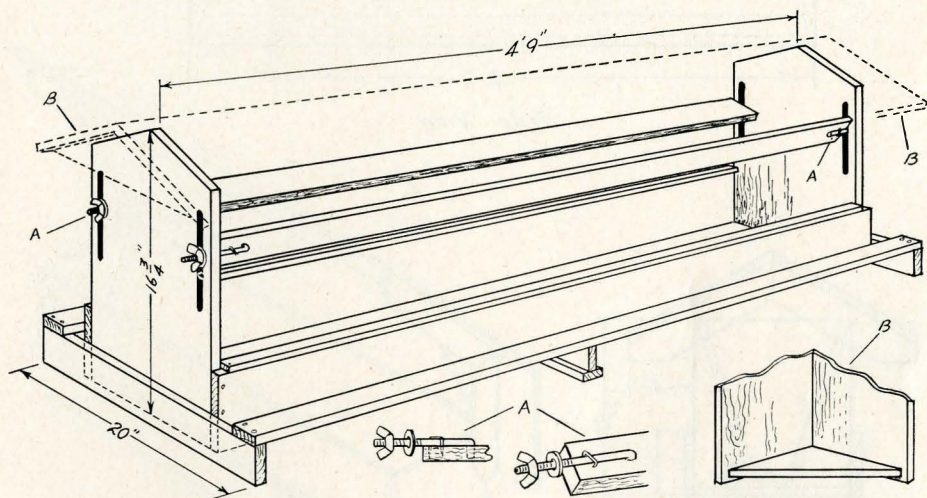
should be kept well filled and moved about once a week to keep ground from becoming contaminated.

Feeders should be raised slightly off the ground to permit air circulation under them to keep them sanitary. They should be anchored to prevent wind from blowing

them over. Livestock should be kept away from the poultry range.

Since carrying feed is hard work, a good supply stored near the range will be a labor saver. A horse, tractor or truck may be used to haul a large amount out to the range and stored where it is handy. The feed should be protected from rain and rats.

Adjustable Range Self Feeder for Pullets



Self-Feeder for pullets which is adjustable for the size of birds so that they can eat without soiling or wasting feed. Spacers may be raised and lowered or tilted. This feeder is 5 feet long, 16 inches high and 10 inches wide. (Courtesy Minnesota Extension Service.)

A constant feed supply for pullets is necessary for rapid, economical growth. Space for all to eat at any time calls for one five-foot feeder for every 50 pullets.

A covered feeder protects from rain, sun, and wind, insuring a good feed intake regardless of the weather.

Large capacity feeders not only make this possible but also save labor required in refilling small feeders.

Waste is avoided by having a deep, wide trough protected by a 1½-inch guard along top edge of trough.

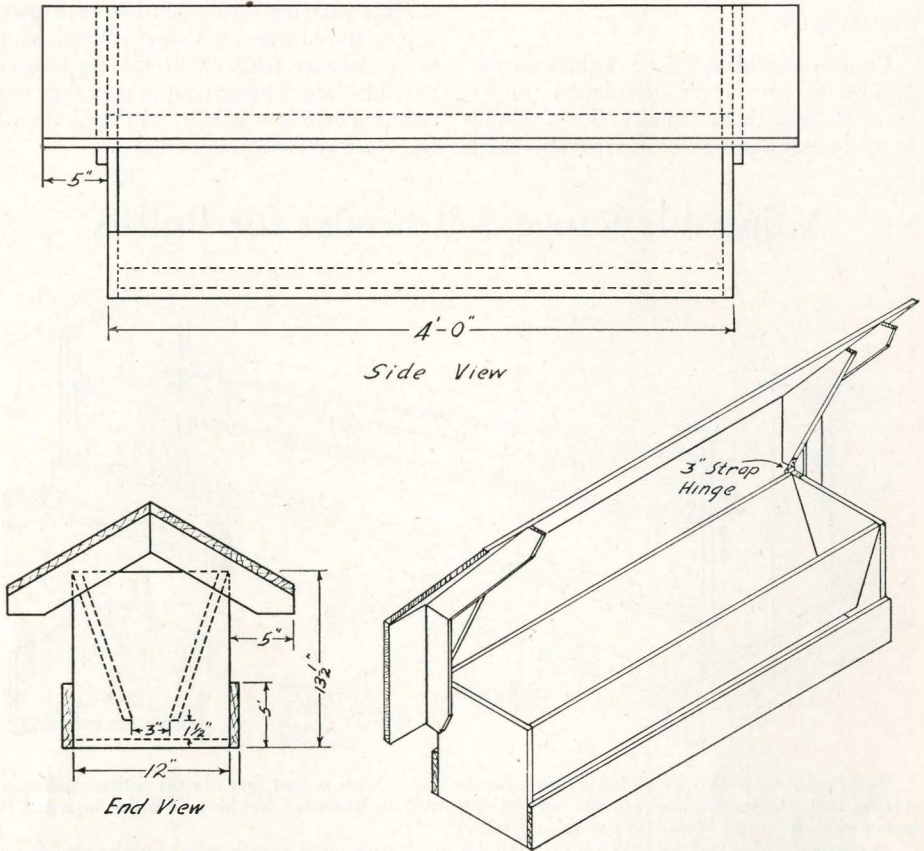
Bill of Material

No. of Pieces	Lumber	Order	Bill
Bottom	1 1" x 10" x 57"	}	1" x 10" x 8'
Ends	2 1" x 10" x 16 ¾"		
Sides	2 1" x 6" x 58 ½"	}	1" x 6" x 10'
Guards	2 ½" x 1½" x 57"		
Perches	2 1" x 2" x 60"	}	1" x 2" x 10'
Crosspieces	2 1" x 3" x 20"		
Blocks	2 2" x 2 ⅞" x 4 ½"	}	2" x 2" x 1'
Bottom cleats	2 1" x 1½" x 20"		
Feed spaces	2 1" x 2" x 57"	}	1" x 2" x 12'
Bottom cleats	1 1" x 2" x 20"		
Cover	2 1" x 12" x 64"	}	1" x 12" x 12'
Gable ends	1 1" x 12" x 16"		

Hardware	
Nails, 6d	1 pound
Carriage bolts	4 only, ¼" x 3" with washers
Thumb nuts	4 only, ¼"
Double pointed tacks	4 only, No. 12

Dimensions given in this bill of material and in the diagram above provide for the most efficient use of regular lumber sizes. However, you may wish to change the feeder size to fit your own needs and materials.

Outdoor Range Feeder



This outdoor range feeder is to be used when young chickens need larger feed hoppers—when they weigh two to three pounds. This feeder is 4 feet long, 1 foot wide and 13½ inches high. The top boards extend out five inches to keep out rain and provide shade. This hopper is sufficiently large to reduce labor in refilling. Larger feeders as this one are higher from the floor or ground and prevent litter from being scratched into them.

Bill of Material

- | | | | |
|---------------------------|------------------|---------------------------|----------------|
| 1 piece 1" x 12" x 3'10" | —bottom | 2 pieces 1" x 8" x 12" | —rafter braces |
| 2 pieces 1" x 12" x 13½" | —ends | 11 sq. ft. of 1" material | —sheathing |
| 2 pieces 1" x 5" x 4' | —side slats | 1 pair 3" strap hinges | |
| 2 pieces 1" x 12" x 3'10" | —sides of hopper | 11 sq. ft. of roofing | |
| 4 pieces 1" x 4" x 14" | —rafters | 1 lb. 6-penny box nails | |

Turkey Range Feeder



The wire across the feeder serves as a tooth-pick (beak cleaner) for turkeys and helps to prevent feather-picking. This feeder is 10 feet long and about 2 feet high, holding about 80-90 pounds of feed. The turkey range feeder shown here is the kind that has been used at the State College poultry farm with very good results. There is very little loss or wastage of feed. For turkeys on the range you should allow at least five inches of hopper space per bird. When confined, six inches per bird, or one 10-foot hopper for every 40 birds. The feeders should be moved at least every week, making better use of the range and eliminating bare spots.

Bill of Material for Making Turkey Range Feeder

1 piece 1 x 8" x 10'—Bottom
2 piece 1 x 10" x 10'—Sides
2 piece 1 x 4" x 10'—Sides

2 piece 1 x 10" x 2'—Ends
2 piece 1 x 8" x 2'—Partition
2 piece 1 x 8" x 10½'—Cover Wire—20 feet

Special Watering Equipment Needed by Poultry on Range

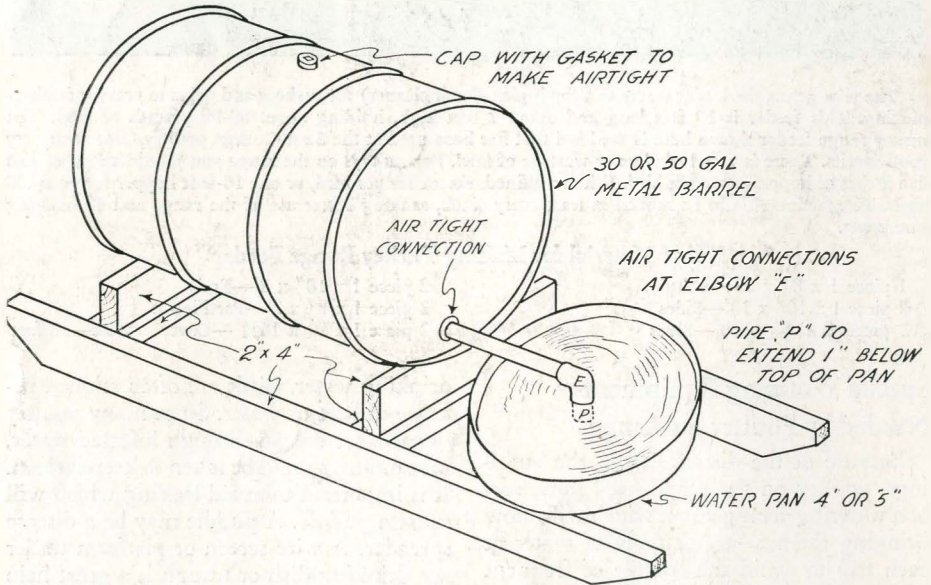
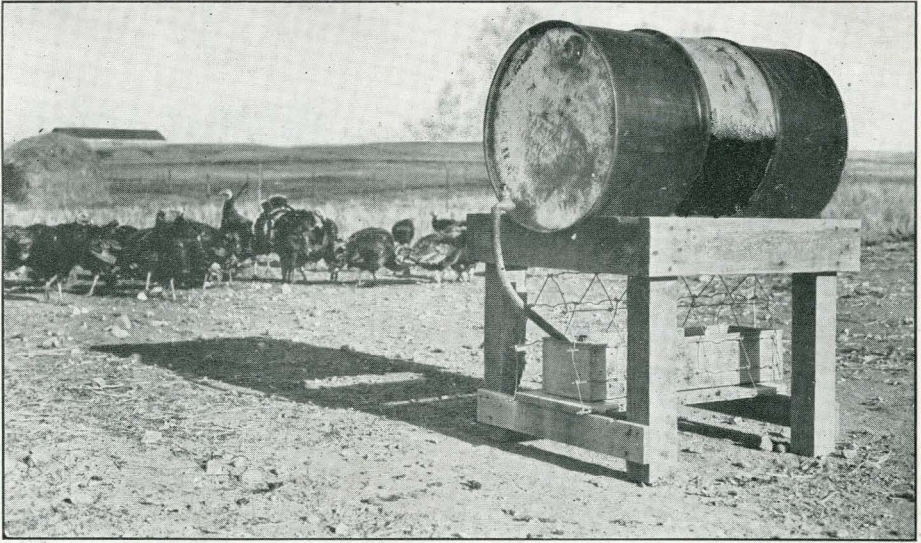
Because of the distance from the buildings, poultry on the range need some sort of a watering arrangement which will allow bringing them a large supply of water at each trip to avoid the trouble of frequent fillings of ordinary small water fountains. The two barrel type waterers shown here answer this problem.

For best growth and production, poultry need a constant supply of good, clean fresh

drinking water. Birds are often stunted because of lack of water. Since many poultry diseases are spread through infected water, precautions should be taken to keep it clean. It is important to avoid leaking which will cause a puddle. A puddle may be a disease spreader. A wire screen or platform under the drinking dish or trough is a great help in keeping the water clean and sanitary.

Water in a barrel will not become stale if the inside of the barrel is kept clean and the barrel located in a shady spot and kept covered.

Barrel Waterer for the Range



On the range, an old oil drum makes a satisfactory waterer. A pipe or a hose is attached to the barrel with an air-tight connection. When a hose is used as shown at the top, the hose from the faucet lies along the bottom of the trough. The trough fills automatically as the water is used, provided all connections are air-tight. This type is better for adult turkeys. The lower type is better for pullets.