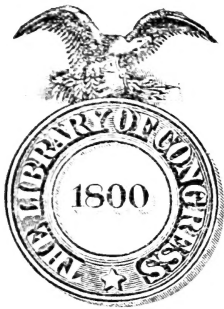


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Issued July 24, 1916.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF ANIMAL INDUSTRY,

A. D. MELVIN, CHIEF OF BUREAU.

Instructions
Concerning the Work of the
Field Inspection
Division.



WASHINGTON:
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INSTRUCTIONS CONCERNING THE WORK OF THE FIELD INSPECTION DIVISION.

TICK ERADICATION AND MOVEMENT OF SOUTH- ERN CATTLE.

1. Cattle of the quarantined area shall not move or be allowed to move in any manner interstate except as provided for in sections 1, 2, and 3 of regulation 2.

Interstate shipments of cattle for immediate slaughter.—2. Interstate shipments of cattle from points in the quarantined area may be made by rail or boat for immediate slaughter, provided:

(a) That proper facilities are furnished and permission is first obtained from the proper State official at the place of destination.

(b) That the cars are properly placarded "Southern cattle" and each waybill, conductor's manifest, memorandum, and bill of lading pertaining to such shipments is plainly marked "Southern cattle" in accordance with section 1 of regulation 2.

(c) That when quarantined cattle are unloaded within the free area they shall be handled over special platforms, chutes, alleys, and yards in accordance with section 2 of regulation 2.

(d) That when the cattle are unloaded within the quarantined area no special pens are required unless necessary under State regulations.

Interstate shipments of cattle for purposes other than immediate slaughter.—3. Cattle of the quarantined area or other cattle exposed to or infested with ticks, which have been dipped twice 7 to 12 days apart in arsenical solution showing a minimum test of twenty-two hundredths (0.22) per cent under supervision of a bureau

inspector, may be moved interstate for any purpose, provided they are certified by the inspector to be free from ticks and are handled in accordance with section 3, regulation 2.

4. Cattle in areas where tick eradication is being systematically conducted, or any cattle presented at a properly equipped dipping station which are free from ticks, may after one dipping under supervision of a bureau inspector in arsenical solution which tests 0.22 per cent be shipped for any purpose after certification by the inspector.

5. Cattle in the quarantined area dipped once under State or bureau supervision in arsenical solution showing a minimum test of 0.22 per cent may be shipped as "Dipped ticky cattle" to a dipping station under bureau supervision, where they may, if free from ticks, be given the second dipping after 7 days and not more than 12 days from the date of first dipping in arsenical solution showing a test of 0.22 per cent, after which they may be shipped interstate for any purpose, provided they are certified to by a bureau inspector and are handled in accordance with section 3, regulation 2.

6. Cattle in areas in which systematic tick eradication is being conducted and which are on premises known to be free from ticks may upon inspection and certification be moved interstate for any purpose without dipping in accordance with section 3, regulation 2.

7. When free cattle are unloaded in quarantined area for rest, feed, and water, properly equipped pens must be provided for them in accordance with section 4, regulation 2.

The hay, straw, or similar materials used for free cattle handled in the quarantined area shall be from the free area.

8. All tick-infested cattle whether of the quarantined or free areas are subject to the regulations governing the movement of cattle of the quarantined area (sec. 7, regulation 2).

9. Horses, mules, and asses infested with ticks must be treated in the same manner as tick-infested cattle (sec. 10, regulation 2).

Cleaning and disinfecting cars, boats, and premises.—10. Cars and boats which have carried southern cattle interstate shall be cleaned and disinfected under bureau supervision by the final carrier at destination, unless:

(a) The cars are used within 48 hours for reforwarding southern cattle.

(b) At the point of destination there is no bureau inspector, in which case the transportation company shall seal, bill, and forward the infectious cars to a point at which bureau inspection is maintained.

(c) At the point of destination there is bureau inspection but no facilities for cleaning cars, in which case they may be moved elsewhere, provided the transportation company first receives permission from the bureau (sec. 11, regulation 2).

11. Cars used for carrying cattle within the quarantined area shall be cleaned and disinfected before being moved interstate to the free area, except cars containing cattle shipped for immediate slaughter (par. 2, sec. 11, regulation 2).

12. The litter and manure removed from infectious cars, boats, other vehicles, pens, chutes, alleys, or other premises shall be destroyed or disinfected under bureau supervision (par. 3, sec. 11, regulation 2).

Arsenical dip and cattle dipping.—13. The best way of preparing arsenical dip is the self-boiled method known as "S-B dip" and described in Farmers' Bulletin 603.

Great care should be exercised in the preparation of the dip; the directions given in the bulletin should be strictly observed.

(a) The S-B dip is prepared in two parts, the tar and part of the caustic soda in a galvanized wash tub, and the caustic soda, arsenic, and sal soda in a barrel or other large

container. A barrel is a good container in which to mix the ingredients.

(b) The high-strength arsenical solution used when cattle are dipped to be moved interstate requires the following materials to make 500 gallons of dip showing a minimum test of 0.22 per cent.

4 $\frac{3}{4}$ pounds caustic soda (at least 85 per cent pure, dry, granulated).

10 pounds white arsenic (99 per cent pure in fine powder).

10 pounds sal soda crystals.

1 gallon pine tar.

(c) The low-strength arsenical solution used in tick-eradication work requires the following materials to make 500 gallons of dip showing a minimum test of 0.175 per cent:

4 pounds caustic soda (85 per cent pure).

8 pounds white arsenic (99 per cent pure).

8 pounds sal soda crystals.

1 gallon pine tar.

(d) It is very important that the capacity of each vat be ascertained by measuring it. See Farmers' Bulletin 603.

(e) When the ingredients are thoroughly dissolved the solution should not be poured into the vat all at one time. It should be equally distributed and poured in gradually. Before dipping the cattle the solution should be thoroughly stirred and then tested so as to determine its strength (see Department Bulletin 76). If the test shows that the solution is weak it should be brought up to the required strength—0.19 per cent in the one case, and 0.24 per cent in the other—as outlined in Farmers' Bulletin 603.

(f) Whenever the arsenical solution becomes dirty the vat should be cleaned out and a new solution made. Where 300 to 400 cattle are being dipped every 14 or 21 days the solution should last for 3 or 4 months, provided that fresh solution is added from time to time to replace that carried out by the cattle and to keep it up to standard strength.

(g) The disposal of dirty or old arsenical solution is very important. It should not be drained into creeks, ponds, or rivers; neither should it be poured on the surface of the ground. A good plan is to dig a trench 8 feet long and 5 feet deep and pour the old solution into it.

(h) Bureau employees should caution owners or persons in charge to handle cattle carefully and treat them humanely at dipping vats. It is dangerous to dip cattle when they are hot. The best results are obtained when cattle are dipped early in the morning.

(i) When cattle are dipped under supervision for interstate shipment they should not be loaded in cars until their hair and hide is dry. As certificates are required for such shipments the inspector should not issue them until the cattle are dry.

(j) In systematic tick-eradication work all dippings should be supervised by county, State, or Federal inspectors. There should be a sufficient number of dipping vats in every county engaged in tick-eradication work so that the animals will not have to be driven long distances. In farming districts the vats should be located so that no cattle will have to be driven more than 2 miles. There should be a sufficient number of county inspectors so that an inspector can supervise the dipping at every vat. No inspector should have more than 10 vats to look after, and in free-range territory 7 or 8 vats are sufficient for one inspector.

(k) Each inspector should have a record of the herds and number of cattle tributary to each vat, and he should see that all herds and all the cattle of each herd are brought to the vat regularly and dipped. If the owner fails to bring his cattle or leaves some of them behind the inspector should notify him the same day to bring them to the vat and have them dipped in accordance with the regulations.

(l) It is important that the slide where the cattle enter the vat should be smooth so as to avoid cutting the animals or injuring them in any way. The inspector who supervises the dipping of cattle should see that the heads of

animals are immersed once. Cattle should be allowed to remain in the draining pen or chute until the dripping of solution from the animals ceases.

Reports of inspections and dippings.—14. F. I. Form 48-BB, in duplicate, should be used to report all inspections and dippings of cattle in connection with tick eradication, and should be forwarded promptly to the office of the inspector in charge. The original copy should be kept at the office of the inspector in charge; the duplicate copy may be sent to the State official in charge of the work, if he desires a record. In territory in which systematic dipping is conducted one report on F. I. Form 48-BB in duplicate may be used for the entire number of cattle dipped at each vat every regular dipping day until it is considered advisable to report such infested herds separately.

15. F. I. Form 48-G is used to record dipping operations by each supervising employee; one form to be used for each dipping vat within areas doing systematic work. This card will show the number of cattle dipped, the number of free and infested cattle, and the per cent of the solution as determined by the test and reported by local inspectors on F. I. Form 48-BB.

Whenever the inspector in charge considers it advisable, a separate 48-G card may be used for each herd instead of for each vat.

The office of the inspector in charge shall keep a 48-G record similar to the record kept by the employees located in the field.

16. F. I. Form 48-H shall be rendered monthly by the inspector in charge for each county or parish engaged in cooperative tick eradication, whether preliminary, educational, or systematic work. This report shall show in addition to men employed the number of cattle inspected, quarantined, dipped, etc., and the amounts spent by the county, State, and Federal Governments for salaries and expenses incurred by the county and State in the building of dipping vats and the purchase of supplies used in tick

eradication work; both amounts may be included under the same total for State and county respectively. These monthly reports should be forwarded to the Washington office on or before the 8th day of each month.

17. F. I. Form 48-J shall be kept at the office of the inspector in charge for each county and parish engaged in cooperative tick eradication.

Reports of inspections and dippings for interstate movement.—18. F. I. Form 21 is used to report cattle reloaded from quarantine pens. The original should be forwarded to the Washington office, and copies should be sent to inspectors in charge at points in transit and at destination.

19. F. I. Form 48 should be used to cover the interstate movement of cattle of the quarantined area permitted under bureau inspection and certification.

20. F. I. Form 48-A for dipping and F. I. Form 48-B for inspections should be rendered to the inspector in charge for all cattle inspected or dipped for interstate movement.

21. F. I. Form 48-C should be rendered by the inspector in charge at the close of each month. When this form is rendered to cover operations at public stockyards it supersedes F. I. Form 19. In the first column under inspections classed as infected enter the total number of cattle received and handled in the quarantine pens each day. Under "Remarks" enter total for month of "Dipped ticky cattle"; also total number of certified free cattle from quarantined area.

Inspection at public stockyards.—22. In checking waybills covering shipments of cattle from the quarantined area a memorandum should be made of all consignments accompanied by a statement, as "Dipped ticky cattle," or a certificate, as "Free cattle," and lists should be prepared of all shipments originating in territory adjacent to the quarantined area in order that such cattle may be inspected especially for ticks.

CATTLE AND SHEEP SCABIES.

Preparation of dips.—23. The lime-and-sulphur dip for cattle scabies is made in the proportion of 12 pounds of unslaked lump lime or 16 pounds of commercial hydrated lime (not air-slaked) and 24 pounds of flowers of sulphur to 100 gallons of water.

Directions for preparation of 100 gallons of dip.—Weigh out the lime and sulphur. Place the lime in a shallow, water-tight box similar to a mortar box, or some suitable vessel, and add enough water to form a lime paste or lime putty. Sift into this lime paste the flowers of sulphur and stir well; then place the lime-and-sulphur paste in a kettle, boiler, or tank containing 30 gallons of boiling water. Boil the mixture for two hours at least, stirring frequently; add water occasionally to maintain the original quantity. Allow the mixture to settle in the tank or draw the entire contents of the kettle or boiling tank into a large tub, barrel, or settling tank placed near the dipping vat and provided with a bunghole about 4 inches from the bottom, and then allow ample time to settle until the liquid is clear. When fully settled, draw off the clear liquid into the dipping vat, taking care not to allow any of the sediment to accompany it, as the sediment will injure the wool. The clear liquid thus obtained only requires the addition of sufficient clear warm water to make a solution containing 2 per cent sulphid sulphur. By bringing the total up to 100 gallons the dip will usually, under average conditions, test 2 per cent sulphid sulphur. However, care should be taken not to make too great a dilution prior to testing.

24. The lime-and-sulphur dip for sheep scabies is prepared in the same manner as for cattle scabies except that 8 pounds of lump lime or 11 pounds of commercial hydrated lime (not air-slaked) should be used, and the solution should be diluted to test 1.5 per cent sulphid sulphur.

25. The nicotin dip for scabies of cattle or sheep is made with sufficient nicotin solution to give a mixture containing not less than five one-hundredths of 1 per cent (0.05) nicotin and 2 per cent flowers of sulphur is added to pre-

vent reinfection. Sufficient nicotin would therefore be furnished for 96 gallons (about 800 pounds) of dip by 1 pound of a 40 per cent solution of nicotin. The formula for this dip would be: Nicotin, four-tenths of a pound; flowers of sulphur, 16 pounds; water, 96 gallons.

To calculate how much nicotin solution should be used for 96 gallons of water, divide the quantity of nicotin required in the dip by the proportion of nicotin in the solution. For example, suppose the nicotin solution contains 25 per cent nicotin, we have $0.40 \div 0.25 = 1.6$. Therefore in this case it would require 1.6 pounds of nicotin solution for the 96 gallons of dip. Do not use any preparation the strength of which is not given on the label of the container.

In preparing these dips the nicotin solution and sulphur should be mixed together with water before adding them to the water in the dipping vat and the contents of the vat should be stirred while the mixture is being added. The dip should on no account be heated above 105° F. after the nicotin solution is added, as heat is liable to evaporate the nicotin and weaken the dip.

Directions for testing dips.—26. To test the lime-and-sulphur dip, mix bath well, let settle for a few minutes, then fill a clean, dry graduate with bath, setting TOP edge of surface on the zero mark, and pour (draining out drops) into a clean, wide-mouthed bottle.

Rinse graduate with clean water (or rinse with a little of the test fluid), shake out adhering drops, and fill to zero mark with test fluid.

While gently swirling bottle containing the bath pour in test fluid from the graduate until the yellow color of the bath becomes faint. Then let the contents of the bottle come to rest and gently drop on the surface one drop of indicator solution from the dropping bottle. Note if a violet color appears where the indicator solution mixed with the bath. If color appears add a little more test fluid from the graduate, mix, and test again with a drop of indicator solution. Continue this until a drop of indi-

cator solution fails to produce any color, avoiding the addition of excess of test fluid.

The number of cubic centimeters of test fluid added to just reach the point where color with indicator solution fails to appear represents tenths of 1 per cent of "sulphid sulphur" in the bath.

NOTE.—The indicator solution should not be more than one week old. Prepare fresh solution by dissolving one "tablet for indicator solution" in 15 c. c. clean water in the bottle. Keep test fluid in glass-stoppered bottles only, and in a cool, dark place.

27. To test the nicotin dip, measure 100 c.c. of well-mixed bath into the "titration bottle" (8-ounce round bottle), rinse graduate, and then measure 100 c. c. of water into the same bottle. Add the contents of one paper of "precipitate reagent" to the liquid in the titration bottle, stopper, and shake vigorously for two minutes, then let settle quietly for two minutes more.

Open out a large plaited filter in the glass funnel and support the latter in the mouth of the 100 c. c. graduate. Carefully pour the contents of the titration bottle onto the filter, leaving behind most of the froth and precipitate. Collect 100 c. c. of the filtrate.

Rinse the titration bottle clean with water and pour into it the 100 c. c. of filtrate. Next add 10 c. c. (from the 10 c. c. cylinder) of the "hydrochloric acid," stopper and shake well for a few seconds. Take out the stopper and touch it to a strip of "test-paper." If the moistened paper does not show a deep blue color, add 2 c. c. more of hydrochloric acid, shake, and test again, repeating with 2 c. c. of hydrochloric acid until a blue color is produced.

Fill the "burette" with the red "test-fluid," run back a little through the stopcock into the bottle of test fluid (to remove air trapped in the stopcock), then adjust the level of test-fluid in the burette at the 0.000 mark. Now into the liquid in the titration bottle run out test fluid from the burette down to a mark indicating one or two hundredths per cent less than the hundredths of 1 per cent of

nicotin expected to be in the bath. Stopper the bottle and shake vigorously for two minutes.

Open a small filter paper into a cone, grasp it by the triple-thick side between the thumb and forefinger, and fill it about one-third full with liquid from the titration bottle. Let the first five or six drops fall back into the titration bottle, then catch both cups of the black plate (which must be *strictly* clean and dry) level full of the filtered liquid, which must be perfectly clear. Pour any liquid left in the paper back into the bottle. Now into the liquid in one of the cups let fall from the dropper one drop of "indicator solution." Carefully observe the liquid in both cups, holding the plate in various lights. If no difference can be detected in the two cups after about half a minute, too much test fluid has been used and it is necessary to repeat the whole operation from the beginning, using less test fluid. If a white cloud appears in the cup to which the indicator solution was added, a further quantity of test fluid equivalent to 0.005 or 0.010 per cent nicotin (depending on the heaviness of the cloud) is to be added to the titration bottle, and the shaking and testing repeated. Proceed thus until, after the last addition of test fluid, absolutely no cloud can be detected in the cup upon treating with indicator solution. The reading on the burette gives directly the per cent of nicotin in the bath.

NOTE.—If measuring cylinders, etc., are wet, shake out adhering drops of water before using them.

All the measurements are to be made with the *top line* of the curved surface (meniscus) of the liquid on the mark.

The indicator solution is simply a little of the test fluid kept apart for convenience.

CAUTION.—Great care to avoid contamination is necessary in making the test on the black plate. The fingers must be rinsed clean from bath, test fluid, etc., before touching the filter paper. Do not allow the latter to touch the mouth of the bottle or anything else except the clean

finger tips. Be sure the black plate is absolutely clean. Look very carefully for the white cloud which toward the end is only faint and may not be noticed at first.

Frequent tests of dips required.—28. Employees supervising the dipping of sheep and cattle should test the dip when the vat is charged or before dipping is commenced and thereafter at sufficiently frequent intervals to insure maintaining the dip at the uniform standard strength. The contents of the vat should be well stirred before the test is made. It is sometimes necessary to allow a few animals to pass through the vat before the dip is well mixed. At vats where the operations are continuous throughout the day and large numbers of animals are being dipped the dip should be tested at least three times during the day.

DIRECTIONS FOR DIPPING CATTLE.

Immersion.—29. When either the lime-and-sulphur or nicotin dip is used, the cattle should be completely submerged once, and the dip in the vat should be maintained at a depth sufficient to swim the tallest animal to be dipped.

Affected cattle.—30. Affected animals should receive special attention in the application of the treatment to the upper portions of the body where the lesions usually appear. This should be done by applying the dip to the neck, withers, and back from a bucket and thoroughly scrubbing these parts while the animals are in the chute prior to entering the vat.

Exposed cattle.—31. Cattle can only become exposed by coming in contact with infected animals or being closely confined in infected cars or premises.

Time in vat, changing fluid, etc.—32. Cattle visibly affected should be held in the dip from two to three minutes and their heads submerged at least once for but an instant at a time, and assistance must be rendered immediately if they appear to be strangling. The best time to duck the head is while the animals are in the last third of

the swim. Cattle not visibly affected should remain in the dip a minimum period of one minute. The dip must be maintained at a temperature between 95° and 105° F. while the animals are in it. It should be changed as soon as it becomes filthy, regardless of the number of cattle dipped in it, and in no case should the dip in the vat be used again after it is 15 days old. In cleaning the vat the entire contents must be removed, including all sediment and droppings or other foreign matter.

Handling cattle in vat.—33. Men with dipping forks should be stationed along the vat to keep the animals completely submerged except the heads as they swim through. This may be done by placing the fork over the withers and pushing the animal under the dip. The cattle should be prevented from swimming through too soon by means of a holding gate, or in the event there is no such gate, the dipping forks may be used to retard their movement.

Number of dippings required.—34. Cattle visibly affected with scabies must be given two dippings with an interval of from 10 to 14 days between dippings. One dipping should be sufficient for cattle not visibly affected.

DIRECTIONS FOR DIPPING SHEEP.

Depth of dip in vat.—35. The average depth of dip used in a dipping vat for sheep is from 40 to 48 inches and the amount of dip necessary to obtain that depth should be ascertained before preparing the dip.

Time in vat, changing fluid, etc.—36. Sheep classed as infected must be kept in the dip between two and three minutes, and those classed as exposed or free should remain in the dip at least one minute and the heads of all sheep dipped must be submerged at least once, though but for an instant at a time, and assistance rendered immediately if they appear to be strangling. The best time to duck the head is while they are in the last fourth of the vat. The dip must be maintained at a temperature between 95° and 105° F. while the sheep are in it, and must

be changed as soon as it becomes filthy, regardless of the number of sheep dipped, and in no case shall it be used again when more than 10 days old. In emptying the vat the entire contents must be removed, including all sediment and droppings or other foreign matter.

Use of dipping forks.—37. Men with dipping forks should be stationed along the vat to prevent the sheep from swimming through too soon, and to push each sheep under the dip except head, as they pass them. If they are swimming through the vat too quickly, the men can hold them back with dipping forks. They should be held in bunches of 3 to 5, each man holding a bunch the necessary length of time, then passing them to the next man, pushing them well under the dip, except the head, as they swim past. Place the dipping fork over the front part of the shoulders, and gently but firmly push the sheep under the dip except the head. If properly done, the sheep will raise its head, so the neck can be well soaked without danger of strangling by pushing the head under.

Sorting and hand dressing.—38. All sheep that have hard, dry scab on them should be sorted from the flock and the diseased areas hand-dressed with some of the dip by rubbing the scab with a smooth stick or a brush as the dip is applied so as to moisten and soften the scab, but not severely enough to draw blood, as the blood will protect the mites from the effect of the dip. Allow these sheep to stand 30 to 60 minutes after hand dressing before putting them in the dipping vat.

Number of dippings required.—39. If the band of sheep is affected with scab a second dipping must be given at an interval of 10 to 14 days from the first one, to kill the mites hatched from the eggs not killed by the first dipping. If the band of sheep is not affected, but has only been exposed to the disease, one dipping should be sufficient.

Drowning sheep.—40. When sheep start to drown or become strangled in the dipping vat, it is often necessary to pull them out immediately to save them. Such sheep,

providing they have not remained in the vat the required length of time, should be returned to the pens and again dipped when they have sufficiently recovered.

Difference between dipping sheep and lambs.—41. As a rule the dip will penetrate the fleece of a lamb quicker than that of a full-grown sheep in full fleece. For this reason they should not be put into the dipping vat together, the grown sheep requiring the most time on account of the gum in the fleece.

GENERAL DIRECTIONS FOR DIPPING.

Watering and feeding animals.—42. Three to six hours before animals are dipped they should be watered and fed so they will not be hungry or thirsty at time of dipping. The floors of the dripping pens should be sloped or so arranged that the dip will drain away and not collect in pools from which the animals may drink.

Soft water is better than hard water for dipping, but if it can not be obtained the hard water may be "softened" by the addition of sal soda or lye, but no more should be added than is required to "cut" the water. From 1 to 4 pounds of sal soda to each 100 gallons of water is usually sufficient.

Computing amount of dip required.—43. In one gallon there are 231 cubic inches; multiply in inches the average length by the average breadth, the product by the depth, divided by 231, and the result will be the number of gallons. To obtain the average length of the vat add the length at the bottom to the length at the top of the dip and divide by 2; obtain the average width in the same manner. The depth should be taken at the center of the vat, and should be from the bottom to water (or dip) line. Be sure to measure only the space filled by the dip and not above that line. The cooking tank should also be measured. It is convenient to have rods marked showing the number of gallons at various lengths.

Freshly shorn sheep and short-wooled lambs will carry out and retain in the fleece from 1 to 2 quarts of dip; full-

fleeced fine-wool sheep take up as much as 2 gallons, and at late fall dipping the average medium-wool sheep will retain about 1 gallon. The average 1,000 pound short-haired steer will carry out and retain about 2 quarts of dip and the same class of cattle with long hair will retain about 1 gallon. The total estimated amount of dip which the animals carry out and retain plus the amount required to charge the vat should equal the total amount required if there is none lost by leakage.

Mixing the dip.—44. Mix the dip thoroughly in the dipping vat by stirring length wise in the vat, also from top to bottom. A large hoe or stirring plunger is a good instrument to use in stirring.

Temperature of dip.—45. After the dip is thoroughly mixed, take the temperature at different parts of the vat; see that it is uniform, and if too hot or too cold add hot or cold water with proper proportion of dip until the right temperature for the dip is between 95° and 105° F., and it should be maintained at that temperature as nearly as possible and never over 105° F. To ascertain the temperature, take some of the dip out of the vat in a bucket, hold the thermometer in it, and read the temperature while the thermometer is in the fluid.

Injuries in chutes and vat.—46. Do not have any projecting boards, nails, etc., in the pens or chutes or cross-pieces or projecting timbers in the vat where animals may strike them and be wounded or bruised.

Daylight inspection required.—47. Inspection of animals should not be made before sunrise in the morning or after sunset in the evening, and in no case should inspections be made by artificial light.

Points to remember.—48. Remember that it is just as important to do thorough work with the last animals dipped as with the first ones.

The two essential things are a reliable dip properly prepared of proper strength and the thorough soaking of the entire fleece or all of the hair with the dip.

Select good weather for dipping, particularly avoiding wet weather.

Do not dip too late in the afternoon, when the nights are chilly.

Do not hold animals off feed and water longer than can be avoided.

Do not have the incline of the vat so steep that animals can not climb it easily.

Have suitable dripping pens and drying corrals and do not load animals in car until they have become dry.

Handle animals as carefully as possible, and the causes of shrinkage in dipping will be avoided to a great extent.

Animals that are in good condition will stand the dipping very well, even when the weather is quite cold.

Subsequent classification of dipped animals.—49. Infected animals dipped twice in accordance with regulations will be regarded as free unless live mites are found on them or unless they are exposed after 3 days subsequent to the last dipping by coming in contact with infectious premises, inclosures, or otherwise. However, if dipped sheep after they are dry mingle with infected sheep they should be classed as infected; if dipped cattle so mingle they should be classed as exposed. If either dipped cattle or sheep are closely confined after they are dry in infectious pens, cars, or other inclosures they should be regarded as exposed.

Diverting shipments of clean cattle.—50. In cases where a shipper wishes to divert part of a shipment of clean cattle or sheep to a point other than that mentioned on either the billing or the bureau certificate of inspection covering the same, it may be done without reinspection if the stock are not unloaded, provided the bureau employee or the railway agent at the point of diversion shall note over his own signature on the billing accompanying the animals so diverted the number of the bureau certificate, the date of same, and the name of the inspector by whom it was issued. A further notation should be made on the original certificate indicating the numbers

and initials of the cars, and the number of head of stock so diverted as well as their destination. The notations above required to be made on the new billing will stand in lieu of the original certificate, which should accompany the remainder of the shipment to the destination originally mentioned. (See sec. 59 hereinafter.)

REPORTING INSPECTIONS AND DIPPINGS FOR SCABIES.

In order that all cattle and sheep handled at points where inspection is maintained by this bureau, as well as all those inspected in the field, may be examined for scabies and that the work connected therewith may be uniformly and accurately reported, the following instructions will be observed:

F. I. forms to use.—51. The F. I. Form 24 series should be used in reporting all inspections and dippings of sheep. The F. I. Form 48 series should be used for like purpose in reporting cattle. F. I. Forms 24-A and 48-A are to be used for reporting dippings and 24-B and 48-B for reporting inspections of sheep and cattle respectively.

Reinspections.—52. No distinction should be made between "inspections" and "reinspections." They should all be reported as "inspections," but reference should be made to former inspections when possible.

Separate reports for each lot.—53. Each lot of cattle or sheep dipped for scabies should be promptly and carefully reported on the proper forms—F. I. 48-A for cattle and F. I. 24-A for sheep—by the employee supervising the same. Separate slips should be used for each condition (infected, exposed, or free). If the animals dipped are infected and have been previously inspected by a bureau employee during the calendar year then current, the report of dipping should refer briefly to the report of previous inspection; thus "Smith, 6/28/04." The report of a second dipping should always refer to the date of the first dipping. When one employee makes the inspection and another supervises the dipping the former should report the "inspections" and the latter the "dipping."

Notice of shipment under certificate.—54. Notice of shipments of cattle or sheep under bureau certificate, in placarded cars, should be promptly forwarded on F. I. Form 48-B for cattle and F. I. Form 24-B for sheep to the proper bureau representative at unloading points in transit and at destination in order that the notice may arrive prior to receipt of the animals. Such report should give full information as required by the forms. Such notices should be filed in the office of the inspector to whom they are addressed.

Infected animals dipped once.—55. When infected animals are shipped after one dipping under the supervision of an employee of the bureau, they must be handled as "infected" and so reported by employees at unloading stations in transit and at destination.

Separate reports for each certificate.—56. When one owner has separate lots of animals inspected or dipped and a certificate (F. I. Form 24 or 48) is issued for each lot, a separate report should be made of the animals covered by each certificate.

Employees working together.—57. When two or more employees work together in the inspection or dipping of the same animals, but one set of reports should be made, and these should be signed by each employee.

Care in making reports.—58. All reports (F. I. Forms 24-A, 24-B, 48-A, and 48-B) must be executed with care, and special attention should be given to the following entries:

(a) *Location of animals.*—The town or station and State where the inspection is made or the dipping supervised must be given. If not at or near a station, then the county, State, and locality must be designated. Where animals are infected, the owner's name and correct address must always be given, and also the origin of the animals, or the place where they became infected; this information, if possible, should include the county as well as the town and State.

(b) *Date of report.*—The date of the report should be the same as the date on which the inspection is made or dipping supervised, and, if the inspection and dipping of one lot of animals should require more than one day, all the dates should be given.

(c) *Number and condition of animals.*—The number of animals inspected or dipped should be entered on the line corresponding with the condition (infected, exposed, or free) of the animals at the time the inspection is made or dipping supervised.

(d) *Kind of dip used.*—When reporting a dipping, the kind of dip used must be stated under either of the following classes: Nicotin and sulphur, abbreviated thus, N. & S.; lime and sulphur, abbreviated thus, L. & S. Trade names of dips must not appear on reports.

(e) *Number of dippings.*—Each report of dipping should be made to show which dipping it covers by crossing out the words "1st dipping" or "2d dipping," or by crossing out both "1st" and "2d" and inserting "3d" when necessary.

(f) *When animals change owners.*—Whenever a band or herd of infected animals changes owners between inspection and last dipping, mention of the former owner should always be made on later reports.

Unloading and diverting in transit.—59. More than one certificate covering the same animals must not be outstanding at the same time. When a certified shipment is unloaded in transit and is divided and reconsigned to different points, or when for any cause the point of destination is changed after a shipment has gone forward, new certificates should be issued only after a careful reinspection of the animals. In all such cases the employee who issues new certificates should take up the old ones and attach them to the report covering his own inspection of the animals. (See sec. 50 herein.)

Certificates and duplicates.—60. When a certificate is issued a duplicate should be properly filled out and signed at the same time, and when all the certificates in

a book have been issued the book of duplicates should be forwarded to the inspector or officer in charge, who will retain them in his office. Sheep should be certified on F. I. Form 24, and cattle on F. I. Form 48, and when shipment is made the certificate must be attached to the billing accompanying the shipment.

Detection of disease in transit.—61. When a shipment of cattle or sheep is found, whether in transit or at destination, to be affected with scabies, the inspector at the point where the disease is detected should immediately forward notices of the condition of the animals to the proper State official and to the inspector in charge of the district in which the shipment originated. Such notices should be prepared on F. I. Form 24-B for sheep and F. I. Form 48-B for cattle and mailed as early as possible, in order to facilitate the prompt disinfection of the yards and pens through which the animals were handled. In such cases the report (F. I. Form 24-B or 48-B) sent to the Washington office should bear a notation indicating that notices were given as above directed. Care should be taken by those having the matter in charge to see that the above instructions are always complied with.

Yards and pens.—62. The cleaning and disinfection of yards and pens should be reported promptly on a separate F. I. Form 24-B.

TO INSPECTORS IN CHARGE AT STATIONS.

All sheep and cattle received at stations each day should be inspected for scabies and reported in the manner described in the following three sections (Nos. 63, 64, and 65):

Infected animals received at stations.—63. One report should be made on F. I. Form 24-B to cover each shipment of infected sheep; also a separate 48-B report should be made to cover the number of visibly affected cattle in each consignment received. In cases where such infected animals have been previously inspected by a bureau employee during the calendar year then current,

that fact should be noted on the report, giving the name of the employee and the number of the certificate issued by him, thus, "Smith 58979," or if no certificate was issued, thus, "Smith 6/15/04."

Exposed and free animals received at stations.—64. A record should be kept to cover the receipt each day of the whole number of exposed cattle, free cattle, exposed sheep, and free sheep. The data contained in this record should be used in the preparation of F. I. Form 24-C and F. I. Form 48-C reports.

In preparing the monthly F. I. Form 24-C and 48-C reports, care should be exercised to enter correctly the daily inspections and dippings, and all totals should be verified. In reporting the number of certificates, the number issued during the month and also the serial numbers so issued should be given. If the report covers eradication work in the field as well as at the station, such notation should be made on the F. I. Form 24-C or 48-C. These reports should be mailed to the Washington office as soon as possible after the close of the month.

Sheep pens to be kept clean.—65. Those portions of public stockyards used for the reception of uninfected shipments of sheep should be cleaned and disinfected each time after the introduction of infected sheep; and in any event they should be cleaned and disinfected at least once each year. The entire section set aside for free sheep should be cleaned and disinfected as rapidly as possible after the work is started. The time selected for this work should be the season when the receipts are lightest.

IMMUNIZATION AND MOVEMENT OF SWINE AT PUBLIC STOCKYARDS.

Inspection.—66. All swine offered for immunization should be inspected for symptoms of contagious or communicable diseases, and any animal or animals found affected should be rejected. No animal of a lot in which symptoms of cholera are found should be treated. The temperatures of all swine passed on physical examination

should be taken and any animal showing a temperature of 105° F. or over should not be treated; however, if there are no other symptoms of cholera present in the lot the temperatures of the animals rejected may be again taken the following day, when if they are normal they may be treated if free from symptoms of disease.

Treatment.—67. Treatment must be administered by a qualified veterinarian under the personal supervision of an employee of the Bureau of Animal Industry. The field of injection should be disinfected by the application of tincture of iodine or other suitable disinfectant. The dose of serum stated on the label of the container should be increased 10 per cent when used on swine in public stockyards. Only serum and virus prepared under license issued by the Secretary of Agriculture may be used, and a record must be kept of the license and serial number of all serum and virus used.

Proper facilities consisting of a chute or small pens should be provided for restraining the animals while temperatures are being taken or injections made. A dipping vat or approved spraying facilities should be provided for the disinfection of the animals after they are treated. The part of the yards set aside for immunizing swine should be paved or have floors of such nature that they may be kept in a sanitary condition. This section of the yards should be divided into two parts in such manner that the injected animals may be moved directly from the treating pens or chute through the dipping vat or approved spraying equipment into the holding pens. The holding pens should be cleaned and disinfected once each day when used. Swine being given the simultaneous treatment should be held in a separate portion of the yards set aside for that purpose and during the interval held they should not be placed in the holding pens set aside for immunized swine.

Disinfection.—68. Before immunized swine are removed from the yards for purposes other than immediate slaughter they must be disinfected by dipping or spraying in 2 per cent solution of cresol compound or a permitted

brand of "saponified cresol solution." The temperature of the dip or spraying solution should range between 65° and 85° F. while the dip is being used. It should be changed as soon as it becomes filthy, regardless of the number of animals which have been in it, and in no case shall it be used again after it is 30 days old.

Movement.—69. The disinfected swine should be loaded within 24 hours after disinfection is completed, but they should not be loaded until after a lapse of at least 3 hours subsequent to disinfection and in no case until they are dry. The work should be so arranged that the animals will be shipped on the day they are dipped.

Reporting.—70. Immunized swine moving interstate should be accompanied by a certificate, F. I. Form 12. Each lot of swine treated shall be reported on a separate F. I. Form 12-A classifying the animals as "exposed."

LIP-AND-LEG ULCERATION OF SHEEP.

71. Sheep should be considered as affected with the active or virulent form of lip-and-leg ulceration when more than one tissue is involved, as the lips and feet, or where the ulcerations are extensive and accompanied by considerable pus formation. (See regulation 1, sec. 2.)

CLEANING, DISINFECTING, AND REPORTING CARS.

72. In providing equipment for the cleaning and disinfection of cars arrangements should be made so the cars may be washed with water prior to the application of the disinfectant, after which they should be treated with a permitted disinfectant. (See regulation 1, sec. 6.)

73. All cars which under the regulations require cleaning and disinfection should be promptly reported to the Washington office on F. I. Form 62 from destinations, or from points in transit at which their loads are transferred to other cars, or from points to which such cars are billed for cleaning and disinfection when facilities for such are not provided at destination.

74. In the column headed "Nature of infection," abbreviate as follows: sheep scabies, SS; cattle scabies, CS; hog cholera, HC; Texas fever, TF; all other infections should be named in full.

75. The common carrier delivering shipments to the unloading chutes or platforms should as a rule be held responsible for the cleaning and disinfection of the cars. When this is not done other specific arrangements must be made in accordance with the regulations so that both the inspector and the carrier will always know where the responsibility rests.

76. F. I. Form 62-A should be rendered to the Washington office each day that one or more infectious cars are disinfected or billed for disinfection at another point or are removed without disinfection or without due arrangements therefor. The initials of the employee supervising the cleaning and disinfection should be in the lower left-hand corner of F. I. Form 62-A, and if this form is prepared by another employee his initials should be on the upper left-hand corner.

77. In the column headed "Disposal," abbreviate as follows: Cleaned and disinfected, C&D; cleaned, washed, and disinfected, CW&D; sealed and billed (to East Buffalo, for instance) and inspector notified, S&BEast Buffalo IN. In the column preceding the space provided for disposal, the cause of disinfection should be shown by abbreviations used in section 74. In case the cleaning and disinfection is done at the request of Canadian, State, or railroad officials a notation to that effect should be made in this column.

78. The employee supervising the work of cleaning and disinfecting cars should make a record of the numbers and initials of the cars cleaned and disinfected from the cars and not from the railroad records, and such lists should be checked by again comparing with the numbers and initials on the cars. On account of the similarity of car initials and numbers of the various railroads, the F. I.

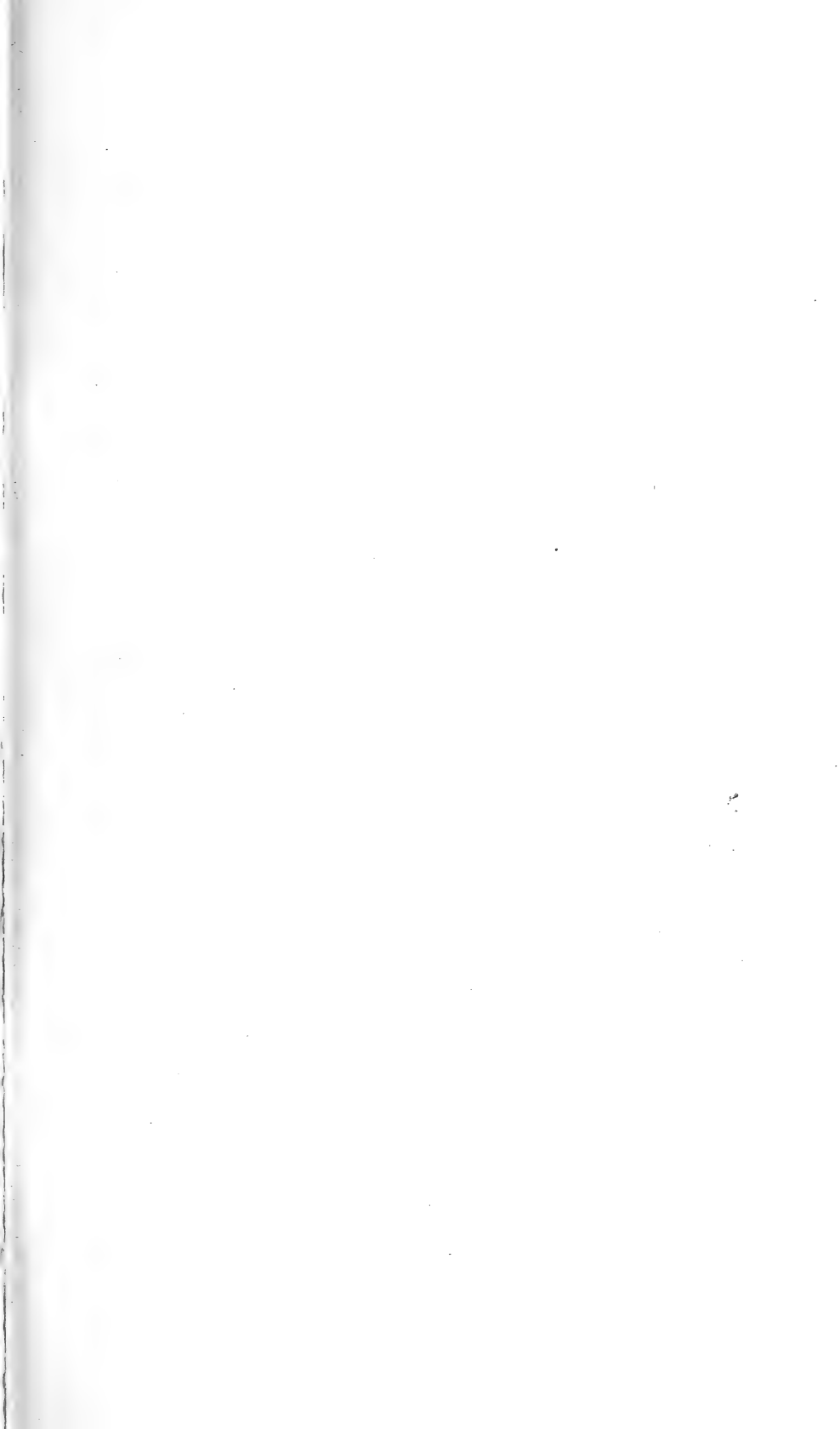
Form 62-A reports must show car initials in full instead of abbreviations, reporting marks, and nicknames.

79. When a car reported on F. I. Form 62 as received or on F. I. Form 62-A as cleaned and disinfected is not a stock car, the class to which it belongs, as "box," "gondola," etc., must be clearly indicated on the report.

80. As soon as it is ascertained that any car is infectious an F. I. Form 57 card should be securely attached to each side of the car if same does not already bear a placard indicating that the car must be cleaned and disinfected, and the proper railroad official should be immediately notified that the car must be cleaned and disinfected under bureau supervision. Notices given over the telephone must be confirmed in writing. In case an infectious car is removed prior to receipt of notice by the railroad officials, such car should be located and cleaned and disinfected in accordance with the regulations. If, after proper notice has been given, infectious cars are removed prior to cleaning and disinfecting, a report should be immediately rendered on F. I. Form 62-A, giving full information, including the nature of infection, date and hour of notice served, date and hour of removal of car, and whether car was carded with F. I. Form 57.

81. F. I. Form 62-D should be rendered on the 1st and 15th of each month, giving a list of all infectious cars reported on F. I. Form 62 and not reported on F. I. Form 62-A, provided that no car should be included unless it was received 15 days or more prior to date of rendering 62-D. A separate report should be rendered for each railroad company responsible for the disinfection of cars. In case there are no such cars the report should be rendered bearing the notation, "No delinquent cars."









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