April 2014

CC207 Emergency Flood Information

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FOREWORD

It is characteristic of Nebraska to be plagued by floods and other natural disasters. Extension has always felt an obligation to give help and make available resources in these times of need. However, due to the sudden onset of natural disasters, and the great variation in nature and intensity, Extension has seldom been in a position to put all resources to fullest use.

The disastrous flood in the Grand Island area in June, 1967, further demonstrated the need of Extension to be better prepared for action. Accordingly, in July, the Director of Extension established a Committee to study the needs and to outline a procedure to meet the problems of flood disasters.

Your Committee hopes that this report will be of value to you in your next flood disaster. Most of the suggestions in the report will apply to other natural disasters as well. The report's value will be in direct proportion to the use made of it. Therefore, we encourage you, as an Agent or Specialist, to study this report carefully. This report is to help you be prepared.

Who knows? -- You may be called upon next!

Committee:

Helen Becker   Dan Lutz
Clyde Clausen  James Novotny
Russell Hughes E. A. Olson
Les Leininger  R. C. Russell, Chm.
Arlen Lutz     Elvin Schultz, Sec.
TO MEET FLOOD EMERGENCIES

Pre-Flood

Some guidelines and materials have been prepared to assist Extension staff in meeting the demands and needs of flood catastrophies. The first and most important step is to be prepared before the flood arrives.

Extension Flood Team

A Committee, called the Extension Flood Team, will have the responsibility of preparing leaflets, bulletins, and other printed materials to be used during and following flood disasters. They will meet once each year to review the materials and make such additions or revisions as necessary. A set of these materials is attached. The Team will see that a supply is available at all times in the Department of Information. This Team will also be on first call to assist where needed during flood disasters.

The Flood Team will be made up of state staff personnel as follows:

<table>
<thead>
<tr>
<th>Team</th>
<th>Alternate</th>
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<tbody>
<tr>
<td>Elvin Schultz--Chairman</td>
<td>Rollin Schnieder</td>
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<tr>
<td>Dan Lutz--Information</td>
<td>Grant Johnson</td>
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<tr>
<td>Jack Steele--Agricultural Engineering</td>
<td>E. A. Olson</td>
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<tr>
<td>Paul Guyer--Animal Science</td>
<td>Dave Williams</td>
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<tr>
<td>Helen Becker--Home Economics &amp; Health</td>
<td>Area Home Agent</td>
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<tr>
<td>Bob Roselle--Entomology</td>
<td>David Keith</td>
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<tr>
<td>Laren Robison--Agronomy</td>
<td>Harold Gilman</td>
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U.S.D.A. County Defense Board

The County Agent should review the plans and aids available through Extension to meet flood needs with his County Defense Board. He should encourage the Board Chairman to make assignments of definite responsibilities. Be sure that if disaster strikes, everyone will know his job and how to carry it out.

The County Extension Board

Review these aids with your Extension Board. They need to know Extension's responsibility and capability. Also, they may prove to be valuable contact people or special helpers in time of need.

Other Agencies, Groups, and Individuals

Inform others who have an interest or responsibility in this area. For example, if you have a County Health Director, he is very interested in available aids Extension has on disease prevention and sanitation. Keep in mind your Red Cross, Salvation Army, National Guard, or others that are available.

Other Natural Disasters

Do not overlook the possibility of using the methods and materials suggested here to meet needs in other natural disasters.
During the Flood

First Step

At the very first threat of flood, get in touch with the Chairman of the Extension Flood Team (Elvin Schultz or Rollin Schnieder, Alternate) immediately.

Extension Flood Team

Maintain a continuous close contact with the Team Chairman. He will dispatch any of his team to your area immediately upon your request. He will see that you get, without delay, the printed materials that you need. You will be served by the fastest means possible as necessity dictates. Your flood problem becomes the first call upon the members of the Team.

Surveys

One of the early needs in a flood disaster is to know the magnitude of inundation. Other agencies have an interest in this matter, also. Efforts should be made to make one survey by a team serve all interests. Be sure that one Extension person is on the team. If air transportation is needed for this task, advise your Extension Flood Team Chairman. He may be able to help you with aircraft from cooperating agencies.

Dissemination of Information

The public news media, radio, television, and newspapers are our most valuable disseminators of information. Most of the printed materials at your disposal are for the use of these media. The news media can be your best partner. Do not overlook those that are located outside the flood area but serve the disaster area. Usually, radio provides the fastest and most complete coverage.

Use Those Specialists

The Extension Flood Team and all other Specialists are at the disposal of a disaster flood area. You are urged to use them. The County Agent has the privilege of using the Specialist or offering his services where he feels they can make a special contribution. His work may be alone, as a member of a team, or in cooperation with some other agency.

Other Agencies - State Level

The Chairman of your Extension Flood Team will maintain contact with other interested agencies through the State Rural Civil Defense Committee. Problems or questions within the jurisdiction of your County Civil Defense Board that cannot be resolved, should be channeled through your Chairman of the Extension Flood Team.

Temporary Refuge, Rescue, etc.

Problems of refuge and rescue generally require facilities of technical assistance beyond that available through Extension. It must not be overlooked that we can supply technical advice on health, nutrition, and sanitation, etc. Also, organized groups with whom we work such as Extension Clubs and 4-H Clubs might be recruited for some services. Otherwise, problems of refuge and rescue can generally be more effectively handled through the County Civil Defense Board.
Post-Flood

Post-flood is that period after flood waters have receded and access can be made to homes and fields. Post-flood activities can generally be defined as:

1. Sanitation, disease, and pest control.
2. Rehabilitation of homes and utilities.
3. Rehabilitation of farm lands and farm improvements.
4. Reconditioning of farm equipment.
5. Salvage of crops, replanting and planting of substitute crops.

In each of these areas, Extension has available information which will be of value if it is made available. To be useful, much of this information should be disseminated during the flood period. This is the time when people are planning on what they will do and how and when they can get back to their farms and homes.

Sanitation, Disease, and Pest Control

Extension can contribute to these problems with technical assistance through our Health, Engineering and Entomology Specialists. Red Cross, Health Officers, County Officials, City Officials, and others are very active in this area.

Rehabilitation of Homes and Utilities

Engineering and Home Economics Specialists can contribute in this area. Financing needs should be referred to financial agencies, both public and private.

Rehabilitation of Farm Lands and Farm Improvements

Engineering Specialists can make contributions to these problems. The Soil Conservation Service might assist in drainage needs, land leveling, and land reclamation. Removal of debris and dead animals belonging to up-stream owners can present entangling problems, often of a legal nature. In such cases, these problems generally fall into the responsibility of County Officials--County Attorney and Sheriff.

Reconditioning of Farm Equipment

Engineering Specialists can contribute in this area. With electrical equipment, the local R.E.A. Advisors can give great assistance. Due to the fact that farm equipment that has been submerged must be reconditioned before it is put in motion makes it imperative that such information be made available with promptness.

Salvage of Crops, Replanting, etc.

This is one of the most important phases of post-flood assistance in which Extension can contribute. This is because of our competence in this area and also because there are no other agencies to whom farmers can turn for guidance.

Agronomy Specialists have provided printed aids and advice to meet the needs of flood recovery. However, it is almost impossible to have materials prepared in advance to meet all needs because floods occur in all parts of the state and during every month of our growing season. Therefore, Agronomy Specialists may be called upon to provide information, on short notice, to fulfill needs of a given situation. Agronomists are prepared to meet special needs with promptness.
Reports

You may be called upon by other agencies to make assessments of damage. Some of these requests may be specific. We can be assured that any report asked for will be practical and useful. Extension should not make assessments or offer opinions beyond their competency or actual knowledge.

As for a report to Extension Service, you should make a report in triplicate; one for the Director of Extension, one for the Chairman of the Extension Flood Team, and one for the Supervisor of the District in which the flood occurs. This report should be made by those Agents and Specialists who participated in the emergency.

Reports should give:

1. Area affected.
2. Approximation of crop and livestock loss, property damage, etc.
3. What was done by Extension Service and your specific part in the effort.
4. Constructive criticism on how the effort of assistance could have been more effective.

It will be by such reports that Extension Service can improve its contributions of assistance to people in times of catastrophe.
Many governmental agencies have specific responsibilities during a natural disaster. The following information is to acquaint you with those responsibilities.

The Extension Service will find their closest cooperators within the County and State Defense Boards. Also, the County Civil Defense Director. Therefore, a close working relationship should be maintained in these areas.

In addition, the Extension Service is often expected to be knowledgeable of other agencies that may be able to make contributions during times of natural disaster. It is for this reason that the attached is made available.

Refer to your U.S.D.A. County Civil Defense Handbook for additional information.
USDA DEFENSE BOARDS

A. Personnel and Meetings.

1. Who represents each of the following agencies with required membership on the board? (203 CDH)

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<thead>
<tr>
<th>Agency</th>
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<th>Address</th>
<th>Telephone Home</th>
<th>Telephone Business</th>
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<td>(E) Others</td>
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Office of Emergency Planning

1. The primary responsibility for Disaster relief is at the State and local level. State and local agencies should plan to utilize their own resources, facilities and funds to the maximum extent.

2. Federal agencies shall make suitable plans and preparations in anticipation of their responsibilities in a major disaster.

Administration of disaster relief

1. Federal financial assistance from funds allocated by the President shall be provided on the basis of project applications submitted by the State and local governments and approved by the OEP regional director.

2. Financial assistance shall be limited to protective work and other work for the protection of life and property, debris and wreckage clearance, and emergency repairs and temporary replacement of essential public facilities of State and local governments, including provisions for temporary housing or emergency shelter.

Who is entitled to assistance?

State and local governments.

Where to apply

Local government: To State government.

State government: To OEP regional office for the region affected by the disaster.

For Nebraska:

Regional Director, OEP Regional Office 6
Denver Federal Center Building 50
Denver, Colorado 80225

U. S. Department of Agriculture

Three types of assistance in natural disaster emergencies:

1. Declaration by the President of a major disaster.
2. May be activated on the responsibility of the Secretary of Agriculture according to specific statutory authority.
3. Action immediately where insured crops have been destroyed.

Assistance Available with a Major Disaster Declaration

A. Agriculture Extension Service

Render advice on cleanup of damaged property, sanitary precautions, water supply and sewage disposal, insect infestations, use of canned and locker-stored food, subsequent to disaster-caused power failure, feed and water for livestock, safety of damaged buildings, application of science and technology to use of damaged land, substitute planting
for damaged crops, grain storage problems, renovation of farm equipment and facilities.

Where to Apply

Agriculture Extension Service

State Director: Dr. John L. Adams  
University of Nebraska  
College of Agriculture  
Lincoln, Nebraska 68503  
Phone: 472-2966

County: Local County Agent or Home Agent

B. Agricultural Research Service

1. Furnish trained field veterinarians and scientific personnel skilled in physical, biological, chemical and engineering research.

2. Furnish veterinarians and meat inspectors trained in plant sanitation and food inspection.

3. Furnish veterinarians, plant pathologists, and entomologists skilled in livestock and crop protection programs.

4. Carry out programs necessary to assure a wholesome supply of meat and meat products.

Where to Apply

E. H. Nordstrom  
Animal Health Division  
Farmers Mutual Insurance Building  
Room 303  
1220 J. St.  
P. O. Box 1866  
Lincoln, Nebraska 68501  
Phone: 475-3544

C. Agricultural Marketing Service:

1. Release of foods available for direct distribution programs for use in feeding needy persons under emergency or disaster conditions.

2. Assist, as appropriate, in obtaining freight rate reductions to facilitate the movement of necessary hay and livestock feed supplies to areas affected by natural disasters or in the movement of livestock from such areas to other areas where adequate pasture or forage exists.

3. Carry out programs necessary to assure a wholesome supply of poultry and poultry products.
Where to Apply

Consumer and Marketing Service
Quentin H. Bierman
Packers and Stockyards Division
Livestock Exchange Building, Room 435
Omaha, Nebraska 68107
Phone: (402) 731-4085

D. Agricultural Stabilization and Conservation Service:

1. Furnish CCC-owned feed grain free of charge to designated State agency on a short-term basis for livestock flood-stranded, unidentified or commingled because of hurricane, flash flood or sudden disasters until their owners can resume responsibility for them.

2. Furnish CCC-owned feed grain free of charge to a designated State agency on a longer term basis for livestock otherwise faced with starvation or liquidation at distress prices because their owners suffered such losses, from hurricane, flood or other disasters that they are without sufficient cash or credit with which to obtain feed for their livestock at market prices or at reduced rates under the livestock feed program.

Where to Apply

Agricultural Stabilization and Conservation Service ASCS

State Office
Joseph A. Tresnak
ASCS State Office
5801 0 St.
P.O. Box 793
Lincoln, Nebraska 68501
Phone: 475-2611

E. Federal Crop Insurance Corporation

Indemnity payments for crop losses to insured farmers and credit assistance to new and continuing policyholders through collateral assignment protection of crop insurance policy.

Where to Apply

Federal Crop Insurance - State

Edwin J. Finigan, Director
303 Post Office Building
Lincoln, Nebraska 68501
Phone: 475-3548

County: Local Representative
F. Forest Service:

Furnish personnel and equipment for rescue work, snow removal, fire fighting, forest pest control, and emergency measures on national forests.

Where to Apply

Forest Service:

Clayton B. Pierce
Forest Supervisor
Central Plains Industry Office
Rm. 243, Post Office Building
Lincoln, Nebraska 68501
P.O. Box 1467
Phone: 475-3381

G. Rural Electrification Administration

1. Assist in restoration of electric power and rural telephone service in R.E.A. service lines. May assist other power service restoration.

2. Credit and technical assistance to rural electric and telephone cooperatives whose facilities have suffered damage as a result of the disaster.

Where to Apply

Nearest REA Representative or REA, Washington, D.C. 20250

Mrs. Lucille A. Clema, General Manager
216 N. 11th St. Box 2031
Lincoln, Nebraska 68501
Phone: 432-2193

H. Soil Conservation Service:

1. Furnish technical assistance in rehabilitation of disaster damaged agricultural land and water resources.

2. Furnish technical assistance in dealing with emergency protection from flooding.

3. Loan limited amounts of heavy earth-moving equipment.

4. Furnish technical assistance with transportation problems when major highways cannot be used.

5. Furnish technical assistance in the application of conservation practices to treat new disaster related problems.
Where to Apply

State: Keith F. Myers
SCS, USDA
Rudge and Gunzel Building, Rm. 604
134 S. 12th St.
Lincoln, Nebraska 68508
Phone: 475-3301

County: Local SCS Office

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Who is Entitled to Assistance:

A. Individuals in need of emergency assistance.
B. Individuals in need of technical advice.
C. State and local agencies needing assistance of veterinarians, scientific personnel because of the danger of pestilence, plant disease or insect infestation.
D. State and local agencies, including the American National Red Cross, responsible for mass feeding.
E. Meat and poultry dealers who need technical assistance in testing and approving stocks for use or sale.
F. Farmers and stockmen in need of credit unable to get it from the usual sources.
G. Farmers and stockmen in need of feed for livestock and who are without sufficient cash or credit with which to obtain feed at market prices or at reduced rates under any emergency livestock feed program.
H. Farmers who have taken out disaster protection on their crop investments in advance of its occurrence are paid insurance indemnities. Credit value is available to new applicants.

U. S. D. A. Disaster Committee:

State: Chm. ASC State Chairman
FHA
CES
ASCS Director is Executive Secretary

County: Chm. ASCS County Chairman
FHA County Supervisor
CES County Extension Agent
ASCS County Office Manager

Whenever a natural disaster occurs, or threatens to occur, the county disaster committee informs the State disaster committee with as much detailed information as possible as to the damage to buildings, equipment, crops, livestock, or land, and its estimate of the need for emergency assistance and the type required.

The State disaster committee evaluates the information available and forwards it with recommendation to the Washington ASCS Office of the department.
EMERGENCY FLOOD INFORMATION

The following information leaflets have been prepared to meet the needs of emergency flood problems. They will be revised and supplemented as need dictates.

An ample supply of these leaflets will be maintained at the Department of Information. They will be sent to Extension Offices upon request of County Agents or others by the quickest means possible.

These leaflets will be of greatest use distributed to the news media. However, they may be used as direct handouts, posters, etc.

As new leaflets are developed and others are revised, copies will be sent to all Extension Offices to be included in this packet. Special needs for specific information should be communicated to your Extension Flood Committee Chairman.
Drinking Water

All wells that have been flooded should be considered dangerous until proved safe.

Wells

After the flood water has receded, the well should be cleaned and flushed until the water is clear. The well and pump should be disinfected by flushing and rinsing with chlorinated water. This can be made by adding one tablespoon of household bleach such as Clorox, Purex, or other sodium hypochlorite solution per gallon of water. Use at least 25 gallons of this rinse. Let stand in the well for at least an hour, then pump until all traces of chlorine odor are gone. While the well is being pumped, open all drinking faucets to insure that they will be disinfected.

Water System

Damage to an electric water system as a result of flood water can be kept to a minimum by the following methods:

1. Disconnect the electric motor and take it to an electrical repair shop. Here it can be checked for any shorts or grounds caused by moisture. If badly saturated with water and mud, it will be necessary to thoroughly clean the motor and dry out the windings in a drying oven. Thoroughly oil bearings before reuse. Motors on ejector or jet pumps have two types of mounting. On one type the motor is a separate unit mounted on the pump and can easily be serviced. Some pumps have the end bell of the motor as a part of the pump and the motor shaft may be one piece running into the pump. With this type of mounting and shafting, remove pump and motor as a unit and take it to an electrical shop. It is not necessary to remove drop pipes.

2. Electrical controls and pressure switches should be cleaned and dried. Electrical wiring should be checked for shorts.

3. The water pumps should be cleaned and valves checked for mud and dirt. The inspection plate on the side of the pump gearing should be removed and all dirt and water removed from gears and gear box. Replenish the gear box with fresh oil.

4. The storage tank should be all right unless muddy water was pumped into it before shutting off. If dirty, clean and drain thoroughly.
5. After the system is put back into condition, operate it for some time to thoroughly pump out the well and force fresh water through all pipe lines. Check the motor for proper switch operation and overheating and check the pump gear box for proper oil circulation.

For more information on this subject, visit your county Extension agent, or write to the Department of Agricultural Engineering, College of Agriculture, Lincoln, Nebraska.
1. If advised to evacuate, do so without hesitation.
2. Prepare now so you can leave immediately.
3. Make your plans now with all members of the family, so that each person knows what he is to do in case of flood.
4. Move important things — food, furniture, rugs, appliances, clothing, and machinery, livestock, feed, grain, and irrigation pipe to higher ground.
5. Don't forget the "can't do without" things of your family — medications, spectacles, diet foods, and proper clothing.
6. Collect valuables — legal papers and sentimental treasures.
7. Remove motors or controls from electrically powered equipment.
8. Turn off all electric service at each building and at the meter pole.
9. If you are going to remove your domestic water pump, first fill all portions of the water system, tanks and pipes with clean water and cap all openings.
10. Seal the well, this will not keep contamination out, but will help to keep silt and debris out of the well.
11. Turn off all gas appliances and also close shut off valves at storage tanks.
12. If you have experienced other floods, you are aware of the mud and debris that can collect in a basement. You can help keep your basement cleaner if you will flood it with clean water before the flood hits.
13. Move irrigation and other power units to higher ground. If this cannot easily be done, remove radiators, air cleaners and carburetors and seal all openings to prevent the entrance of water. Fill the oil reservoirs on engines or pumps. Plug the breathers. **Caution:** Remove all plugs before using equipment. Remove all belts and chains.
14. Plug the irrigation pump discharge.
15. All bearings on equipment should be filled with fresh lubricant. Do not overfill sealed bearings — see Operators Manual. All open bearings should have some lubricant forced out of the bearing. Re-lubricate before use.
16. All open gears, sprockets, pulleys, and wearing or cutting surfaces should be protected with a proper lubricant or rust preventive. Remove all lubricant or preventive before use.
17. Leave building doors and windows open to help prevent flood water from shifting them from foundations.
18. **Evaluate your own situation.** It may be possible for you to remove low land fences, tie down boards, log piles, irrigation pipe, or secure any loose materials that could move with the flood waters.

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Prepared jointly by Agricultural Extension Engineering and Home Economics Extension.
Do not pump out basements too soon or too fast.

In many cases, basements flooded from surface water, seepage, or back-flow from sewer lines suffer little or no structural damage from the inflowing water. However, structural damage to walls and floors often results from pumping out the basement too soon or too fast.

Pumping should not be started until surrounding flood waters are below the basement floor level. Water inside the basement gives an outward force, bracing the walls against the pressure of water and waterlogged soil on the outside. Removing water from the basement too soon may result in walls being pushed in or floors heaving.

For best results, water should be pumped from the basement in stages. If the water is removed from the basement slowly, seepage through the walls may help relieve the pressure on the outside of the wall.

Be safe. Before entering the basement be sure all electrical outlets are disconnected. Also, check around the building for possible evidence of cave-ins.

In general, damage will be either one or a combination of the following things: buckled walls, settled walls, or heaved floors. Proper corrective measures will vary with the cause of the damage. A few recommendations for repairing each of these failures are:

1. **Settled walls and footings.** This is noted by vertical cracking of the wall. It may be general throughout the structure or limited to certain small areas. Correction is very difficult without special equipment. In general, a recognized contractor or engineer should be contacted for repair work and suggestions.

2. **Shifting or buckled walls.** This is evidenced by horizontal cracking and walls moving out of plumb. Corrective measures will vary with the seriousness of the condition.

Where buckling has caused serious weakening of the wall, the best procedure is to rebuild all damaged parts. In less severe cases, immediate repairs may not be necessary. However, in any wall where noticeable buckling has occurred, normal ground pressures coupled with freezing and thawing may cause eventual failure of the wall. Therefore, it is advisable to rebuild parts of the wall that are damaged.

If pilasters were not built in the original wall, they should be added when the walls are rebuilt. Pilasters will increase the strength of the wall and should be used where wall lengths exceed 15 feet.
3. **Heaved basement floors.** If the floor does not return to its original level, it may be necessary to remove the floor and replace it. The following steps are suggested for basement floor construction. First, place six inches of gravel fill on the basement floor surface. Cover this with a vapor barrier. Then place a four-inch concrete floor with mastic joints between the floor and walls.

In cases where the floor returns to its original level, but objectionable cracks or a bad surface remains, and there is sufficient headroom, a new floor may be placed over the old one. A vapor barrier should be placed between the floors, and the new floor should not be less than two inches thick.

For more information on this subject, visit your county Extension agent, or write to the Department of Agricultural Engineering, College of Agriculture, Lincoln, Nebraska.
Among the clean-up problems after the flood are those related to food.

**Is the Food Salvaged From the Flood Safe to Use?**

Fresh fruits and vegetables should be destroyed. Cardboard boxes containing cereals or dried fruit, bottles of flavoring or ketchup, and bags of flour that have been in contact with the flood waters should also be destroyed. Root vegetables should be washed carefully, peeled and cooked before eating.

**May Canned Foods be Used?**

Foods canned in tins or glass jars that have come in contact with flood waters should be checked carefully for leaks. Any questionable ones should be discarded.

Containers with tight seals should be washed first and then disinfected by soaking for 15 minutes in chlorine water. This solution can be made by adding 1 tablespoon of Clorox, Purex, Hilex, etc., to 1 gallon of water. (Chlorine and most of the other chemicals used as sterilizing solutions are poisonous. Care should be taken not to breathe the vapors or swallow any of the chemicals.) Rinse containers in fresh water. Do not use any jars or cans having an odor or other evidence of spoilage.

**Is Home-Frozen Food Safe to Use?**

If your home freezer has been covered with flood waters, chances are that the food inside has been damaged through seepage. This food should be discarded.

If the electricity has been cut off, but no flood water has gotten inside, the amount of food within the box will determine its keeping qualities. A fairly full box will come through a 2 or 3 day period without much loss of quality and flavor. Refreeze partially thawed meat at once. If the meat has been completely thawed, it should be used at once, or large quantities may be cooked and refrozen. Meat, poultry, and fish should be discarded if there is any sign of spoilage. Boxes of fruits and vegetables that are still firm may be refrozen.

For safety's sake, avoid buying foods at bargain prices. These may have come through the flood.

For further information on this subject, contact your county Extension agent or write to the Department of Home Economics, College of Agriculture, Lincoln, Nebraska.
In spite of heavy damage to buildings caused by high water, much can be done to recover their usefulness. To make the best of it, repair structures as soon as possible.

Here are a few key points:

1. Wash out the mud, dirt, and debris as soon as you can. Clean your walls and floors before they dry out. Use a hose and mop or wash rags. Start from the top or upper limit of the flooding, and work downward to the floor or basement.

2. Dry out the building. Open doors and windows for good ventilation. If you can, use electric fans to improve circulation. Drying may take considerable time -- several days, or even weeks if the weather is damp. Wet wood will decay: dry as soon as possible to reduce decay and mold.

3. Insulated frame walls may require special drying. Strips of siding or plaster can be removed from upper and lower portions of the walls to speed up drying of the studding and insulation.

4. Check foundations and footings. Start from the bottom when investigating structural features. See that underlying material is not washed out. Replace with gravel or crushed rock. Add concrete where necessary. Raise or brace up in position to make floors level.

5. See that walls are plumb. Check with a level or plumb-bob. Correct and brace walls to keep them vertical.

6. Repair and patch where necessary. You can do this on a temporary basis now. Final repairs can be done later, in dry weather, when more time is available.

   a. Concrete floors are easily patched, using a rich mix of mortar having no coarse aggregate, 1 to 4 mix.

   b. Wooden floors will dry out slowly. Don't build hot fires to rush drying. Try to prevent buckling and warping by driving more nails wherever flooring tends to lift or bulge. After fully drying, the surface can be planed level or sanded smooth. Then shellac, lacquer, or varnish can be applied for the finish.
EMERGENCY

FLOOD INFORMATION

FIRST STEPS FOR THOSE IN FLOODED AREAS

1. See that everybody is safe and out of danger from new flood crests, fire, and falling buildings.
2. Give full information and cooperation to local authorities, rescue squads, the local Red Cross chapter, and your local civil defense officers.
3. Arrange for shelter, food, clothing, transportation, medical supplies, and hospitalization for the sick and injured.
5. Test plumbing fixtures by flushing with buckets of water. Have sanitary disposal systems inspected by health authorities.
6. Have water supply tested. Boil or chlorinate emergency supplies of drinking water. Use no food that has been contaminated. Destroy fresh or frozen foods that have come into contact with flood waters.
7. Start clean-up of premises as soon as floodwater recedes. Remove doors, clean and dry house before trying to live in it. In entering buildings, use flashlights but no matches; do not turn on electric lights, furnaces, or fixtures until tested by an electrician.
8. Do not pump or drain your basement too soon. The additional pressure of saturated ground may cause basement walls to collapse. Wait until the surrounding flood waters are below the basement floor level.
9. Get stoves or heating plant to work as soon as possible to hasten drying. Remove sediment from heaters, flues, and machines before using them.
10. Take all furniture and rugs outdoors and spread to air.
11. Start cleaning all bedding and clothing as soon as possible.
12. Delay permanent repairs until buildings are thoroughly dry.
13. Use DDT or other insecticides where needed. Kill rodents. Avoid livestock diseases by moving stock to higher pastures.
14. Spread wet feeds to dry. Be cautious in feeding these to livestock. Watch piled hay for spoilage, heating, and fire hazard.
15. Dispose of animal carcasses promptly.
16. Submerged farm machinery should be taken apart, cleaned, and dried before it rusts. Motors or engines must not be started until cleaned and dried. Tractors should not be moved until bearings are cleaned.
17. Clear and open drains, ditches, channels, small streams, and tile-drain outlets. Drain standing flood water if possible. Plug breaks in dikes; use temporary structures to stop breaks against recurrence of high water. Clear debris from lots and fields.
18. Avoid overexertion and strain in lifting and moving heavy objects.

EXTENSION SERVICE
UNIVERSITY OF NEBRASKA COLLEGE OF AGRICULTURE
AND U. S. DEPARTMENT OF AGRICULTURE
COOPERATING
E. F. FROLIK, DEAN  E. W. JANIKE, DIRECTOR
FIRST AID FOR RUGS

Cleaning

Let rugs and carpets dry out thoroughly. Then clean by beating or sweeping or by using a vacuum cleaner. If necessary, shampoo them with a commercial rug shampoo available at drug and department stores or with a homemade solution of synthetic detergents (syndets). Leave large rugs on the floor or spread them out on a porch. For convenience, work with small rugs on a table near the sink or laundry tubs.

Washing

1. Make a shampoo solution by dissolving 1 part of syndet to 8 parts warm water, or use a purchased soapless shampoo. (Use a mild synthetic detergent such as you would use for dishes or fine fabrics. Beat with an egg beater until very stiff. (One cup water and 2 tablespoons detergent will probably be enough to clean a small rug. Caution: do not beat up more than 1/4 cup of the solution at a time.)

2. Apply the foam with a soft brush to a small area of the rug, using a light circular motion. Use only the foam.

3. Wipe the area 2 or 3 times with an absorbent cloth wrung out of lukewarm water. Change the rinse water from time to time as it becomes dirty. Since moisture weakens the fabric in the back of the rug, use as little water as possible.

4. Use Turkish towels to take up moisture or any other soft absorbent materials.

5. Apply lather to another small area, overlapping the first. This overlapping insures that the whole surface will be well cleaned. Continue shampooing a small area at a time until entire rug has been cleaned.

6. Use a cloth or dry brush to smooth the nap in one direction.

Drying

After shampooing them, dry the rugs or carpets as quickly as possible by laying them flat and exposing them to a circulation of warm, dry air. A fan turned on the rugs will speed the drying. Make sure they are thoroughly dry, for even though the surface seems dry, any moisture remaining at the base of the tufts will quickly rot the rug, causing it to fall apart.
Under ordinary circumstances there is danger of colors running and rugs shrinking when shampooed by home methods, but with articles badly damaged by floods, it is usually a case of reconditioning them for any possible use.

**Sizing**

After such treatment, some types of machine-made pile rugs may need resizing to make them lie flat on the floor. Dissolve one-half pound of granulated glue in 1 gallon of boiling water. Lay the clean rug face down on papers in some part of the house where it can remain undisturbed, and tack it down at intervals, being careful to have it straight and true. Then with a whitewash brush or a whisk broom, brush the hot glue over the back of the rug, and let it dry thoroughly.

**Caution**: Do not use so much glue that it will soak through to the right side of the rug.

For more information on this subject, contact your county Extension agent, or write to the Department of Home Economics, College of Agriculture, Lincoln, Nebraska.
Mattresses

Mattresses soaked with flood water should be discarded; reconditioning is too difficult to be done at home. If necessary to use temporarily, scrape off surface dirt and expose to sunlight to dry as much as possible. Cover with rubber sheeting before using. A good innerspring mattress may be sent to a commercial renovating company.

If you do keep mattresses that have been soaked with flood water, they should be sterilized. This can be done only at a plant that has sterilizing equipment, such as that of a mattress company.

If you do not know where there is a sterilizing plant in operation in your area, ask your local public health department or county Extension agent.

To speed up the process, have the mattresses as dry as possible before taking them to the sterilizing plant. Crop drying fans may be used for drying mattresses, pillows and upholstered furniture.

Pillows

If ticking is in good condition, feathers and ticking may be washed together. Open a few inches of the seam in opposite corners of the pillow. Sew loosely by hand, or fasten with strong safety pins. Another method is to transfer the feathers from the pillow to a muslin bag which is larger than the ticking. Sew the edges of the openings of the ticking and bag together, then shake the feathers from one into the other. Close seam of muslin bag which holds the feathers. Wash bag of feathers in lukewarm, sudsy water about 4 to 6 minutes; repeat if necessary and rinse in lukewarm water, changing water several times. If using a nonautomatic washer, squeeze out all the water possible - do not use wringer. Wash foam rubber cushions with cover on. To air-dry, hang on line by two corners. Change position and shake up feathers occasionally to hasten drying. Finish drying pillows by laying on a flat surface in a dry, airy place. Transfer clean feathers to the clean, starched ticking and close, using same method as for emptying. It may not be possible to remove all objectionable odors.

Blankets

Remove surface dirt by shaking and brushing. Rinse in cool water to remove soil lodged in fiber. Prepare lukewarm suds using a mild or all-purpose detergent. Immerse blanket and work gently in the suds with as little agitation as possible. If necessary, wash in a second suds. Rinse in several changes of lukewarm water. Hang blankets over two lines or dry in an automatic dryer with several clean bath towels which are dry.
and have been preheated. While still damp, brush blankets on both sides to lift nap. Electric blankets should always be line dried and gently stretched into their original size and shape.

**Sheets, Towels, and Table Linens**

First, brush off all loose dirt possible. Then rinse mud-stained fabrics in cold water to take out particles of soil lodged in yarns. Wash articles in warm sudsy water - several times if necessary. Hot suds will set stains caused by red and yellow clay. In extreme cases, try bleaching white cottons and linens using a chlorine or perborate type bleach in further washings. Do not over-bleach flood-stained fabrics. Sun drying may aid in bleaching. Avoid using chemical bleaches on colored fabrics.

**Quilts and Comforters**

Wash lightweight quilts like wool blankets. Dry outdoors in sun, if possible, to remove unpleasant odor. Thick comforters may need to be taken apart and the cover and filling each washed separately.

For more information on this subject, contact your county Extension agent, or write to the Department of Home Economics, College of Agriculture, Lincoln, Nebraska.
Much of the cropland in Nebraska flooded by heavy runoff from melting snow may be deficient in nitrogen for most crops this spring. Bottomland soils are usually more fertile than upland soils but flooding can create a serious fertility problem on these soils.

Corn, sorghum and small grains commonly show typical nitrogen starvation symptoms following flooding. This is because soil that is completely water-logged may lose much of its available nitrogen.

Nitrogen Vanishes

Nitrate nitrogen is water soluble. That is, it moves freely with moisture in the soil, rather than being held in the soil.

Flooding carries at least some of this nitrate as deep as the water moves into the soil. Heavy flooding may put as much as 5 to 10 inches of water into the soil.

In a silt loam soil, this would mean that nitrate nitrogen could be carried to a depth of 2 to 4 feet.

A sandy soil would allow the nitrate to be carried to twice this depth or well beyond the reach of most plants.

Poof! It's Gone

Dentrification is the changing of nitrate nitrogen to nitrogen gas by certain soil bacteria that work in the presence of organic matter but in the absence of oxygen. Nitrogen, then, is lost from the soil in the form of nitrogen gas. When cropland is under water for several days all the oxygen is shut out or used up, the dentrifying bacteria become active, and any available nitrate present in the soil is changed to nitrogen gas and released to the air.

Don't Delay Too Long

Corn and sorghum fields that have had water standing on them for three or more days in late spring will probably need nitrogen fertilizer. If the stand is still good, side-dress as soon as possible at one-half to three-fourths the original rate.

A small grain crop that has been flooded in the spring will likely need some nitrogen fertilizer. In spite of the fact that it will probably outgrow the nitrogen starvation symptoms within a few weeks after flood waters have receded, the crop will be set back and not produce best yields without nitrogen fertilizer.

A topdressing with nitrogen fertilizer at one-third the original rate as soon as the soil is dry will supply available nitrogen to the crop during this critical period. For more information contact your county extension agent.
Silt and clay particles carried in flood water are small enough to get between surfaces of close-fitting machinery parts. These particles settle out in parts of tractors and machines that have been under flood water.

Special care is required in cleaning and conditioning flooded equipment. The cleaning operation should be done without delay. Delay will make dirt harder to remove, and may cause considerable rusting and corrosion.

Tractor

Don't move a tractor that has been submerged and don't turn the engine over. Dirt will damage the bearings and close-fitting parts. A tractor that has had the engine submerged should be completely taken apart. Each part must be well cleaned. The job should be handled by your dealer; if not, in a well equipped shop. For a tractor that was not flooded deeper than the platform and that has no water in the engine, you'll need to service only wheel bearings and other submerged parts.

If you have urgent need for a tractor or engine or don't feel it is worth the cost of having it reconditioned by a mechanic, you can use the following procedure. (This procedure isn't thorough enough to prevent eventual damage and need for overhaul.)

1. Remove spark plugs, air cleaner, intake manifold and carburetor. Clean and wash these parts thoroughly in kerosene or cleaning solvent.

2. Drain the oil in crankcase and disconnect fuel lines.

3. Crank the engine slowly with the spark plugs removed to force the water out of the cylinders.

4. Squirt light lubricating oil in each cylinder and let stand for about 5 minutes. Then crank the engine slowly to permit oil to lubricate cylinder walls and rings.

5. Completely flush the fuel system (tank, pump, lines, etc.).

6. Replace magneto, starter and generator; or if time permits, clean and dry them as indicated in the emergency flood leaflet on electrical equipment. A specialist should service this equipment.

7. Drain and flush the transmission and final drive with kerosene. Refill them with new, clean, oil.
8. Remove all wheel and track bearings that do not have positive seals and clean them with kerosene or solvent. Replace them and lubricate with new clean lubricant. Factory-sealed bearings should not require cleaning if the seal isn't broken.

9. If there was a substantial amount of dirt in the crankcase, transmission, or gear train, the oil should be changed again after a few hours of operation.

Farm Implements

Before trying to operate any machine, inspect it carefully and remove all dirt and debris. If the implement has an engine that has been submerged, do not attempt to start or even turn over the engine. Follow the reconditioning procedure outlined for tractor engines.

Carefully clean all exposed gears and sprockets with kerosene or solvent. Then coat with light oil. Clean all chains by soaking and dipping them repeatedly in a bath of kerosene or solvent. Then soak for several hours in a bath of light oil and drain off the excess oil.

Inspect enclosed gear cases for water or grit. If water or grit are present, or if you are in doubt, drain case, flush with kerosene, and refill. Clean and oil or grease all bearings that do not have protective seals. Non-sealed bearings with pressure grease fittings can sometimes be cleaned by merely forcing grease into them until a considerable amount has oozed out from the sides of the bearings. Then remove the excess grease. Caution: Some sealed, factory-lubricated bearings are equipped with grease fittings. The seals of these bearings may be damaged if grease is forced out through them to any great extent.

Examine all belts and repair or replace them if necessary.

Remove knives from mowers and combines. Clean and dry the knives and cutter bars, coat them with light oil, and reassemble. Inspect the insides of combines and remove accumulations of dirt, straw and chaff, debris, or water.

Unroll all canvas conveyors in storage, or remove them from the machine. Clean and dry them thoroughly.

Clean all dirt and rust from the surfaces of soil-working tools (mold-boards, disks, cultivator shovels, etc.). Coat them with rust-preventive compound, grease, or used crankcase oil.

Remove all hay from balers. Clean and oil the bale-chamber surfaces. Clean and oil automatic tying mechanisms. If disassembly is needed for thorough cleaning, this is best done by an experienced dealer serviceman.

After cleaning all moving parts of a machine and replacing any parts that have been removed for cleaning, carefully rotate the moving parts by hand to be sure that they operate freely. Then slowly engage the clutch of the power source and operate at reduced speed until you are certain that everything is in order.

For further information on this subject, contact your county Extension agent or write to the Department of Agricultural Engineering, College of Agriculture, Lincoln, Nebraska.
The principal danger from feeding hay, grain, or forage that has been wet comes from changes in the feed due to mold, putrefaction, and fermentation. If the feed was wet only recently and can be dried quickly, there is much less danger than if the dampness has been of several days or weeks duration.

Feeds that are slightly musty or partly spoiled are more likely to injure horses than cattle. Hogs have a greater tolerance for spoiled feeds, but there is a distinct risk in using feed that is spoiled to any degree. Feed exposed to extensive water damage is likely to be lower in nutrient value. Livestock may tolerate some quantities of damaged feed. Such feed may be used as an emergency measure until supplies of sound feed can be obtained. The principal danger is from digestive disturbances and so-called forage poisoning.

Dirt in considerable quantities tends to make feed unpalatable. In some cases it may be removed by sifting, shaking, or other means.

Grain Under Government Loan

When stored grain under Government Loan is damaged due to flooding, contact your county A. S. C. office at once to determine your responsibility. Damage due to flooding of grain under loan may be assumed by the government. The owner is held responsible for grain stored on the farm under the Purchase Agreement Program.

GRAIN

Grain that has been flooded will begin to mold and heat very soon. This may develop to the point of spontaneous combustion within a short time. Dry portions of this grain in the pile or bin should be removed and stored separately.

There are four alternative methods for handling wet grain:

1. The quickest method for saving grain is to get it to a commercial drier as soon as possible.

2. If dry storage is available, use a natural air drying system with a metal perforated floor or a lateral duct system and put the grain over it to a depth of not more than 6 feet. Use a crop drying fan to force air up through the grain for drying. If supplemental heat is available, it should be used only during periods of high humidity. When used, do not raise air temperature more than 10 to 15 degrees.
3. If neither of the above facilities is available, the grain should be spread in as dry a place as possible, to a depth of not more than 6 inches. Stirring and turning will speed drying and prevent hot spots and spoilage.

4. Shelled corn may be ensiled as wet grain if the moisture content ranges between 25 and 35%. If placed in a concrete stave or metal silo the grain can be held for use as livestock feed only. The reinforcing on a concrete stave silo may need to be increased unless the silo was built for grass silage. Use plastic sheets to prevent air leakage around door openings on the concrete stave silo. Cut plastic sheets to extend 4 to 6 inches beyond the door opening. A plastic cover over the grain will also be necessary in a concrete stave silo. Dig a trench around the edge of the corn and push the film down and out against the silo walls.

**EAR CORN**

Ear corn that has been flooded should be dried as soon as possible. Remove dry ear corn to other storage or place on high ground. If the ground is wet, cover the area with plastic or building paper. Wet ear corn can be handled as follows:

1. If facilities or equipment are available, wet ear corn can be dried. Removal from the crib may be necessary because mud and debris washed into the crib may make drying difficult or impossible. Ear corn can be placed over a drying tunnel and dried by forcing air through the corn with a crop drying fan.

2. When shelling equipment is available, possibly the ear corn can be shelled and dried as above for shelled corn.

**HAY**

Flooded hay will begin to heat and mold very soon after the water recedes. If it is not moved, spontaneous combustion may result within two or three days, or may be delayed for several weeks. The portion of the hay stack that has not been exposed to standing water should be moved and restacked. Wet hay should be promptly spread out to dry and turned frequently. Wet bales of hay, of course, should be opened and well spread out.

If it is possible, mechanical drying is much better and quicker. A tunnel may be constructed of dry bales of hay, and the wet hay stacked over it to a depth of not more than 10 feet. If baled hay is stacked over the tunnels, the bale ties should be broken before stacking.

Watch carefully for evidence of spontaneous combustion. If temperatures within a stack reach 185 degrees, the hot hay should be moved and spread out. Temperatures can be checked by driving a pipe into the stack and lowering a thermometer for 20 minutes. If you do not have a thermometer, temperatures may be estimated by feeling the pipe after withdrawing from the stack.

**CAUTION**

Oat hay that has been wet is not recommended for feed, because of possible chemical changes in the hay which may produce poison.

**SILAGE**

Limited experience indicates that corn silage is not greatly damaged if flood waters are drained away from around the silo soon after flooding. Watch silage for evidence of spoilage as it is removed for feeding.

For further information on this subject contact your county Extension agent.
L-P (Propane or Butane) Gas Installations

Contact your local dealer before attempting to use your range, water heater or furnace. The help of a competent serviceman should be obtained to check for gas line leaks. Do a good general clean-up of equipment but have a serviceman check burners and controls before using them.

Electric Circuits and Equipment

The whole electrical system should be checked for short circuits by an electrician, or competent person, before being turned on. Ask your power supplier for advice and help with electrical systems.

Things to do before electrician arrives:

1. Be sure current is shut off both at the meter and in the building.

2. Remove covers from all switches, convenience outlets, light outlets, and junction boxes that have been under water.

3. If box is filled with mud, remove screws holding receptacle or switch in box. Pull receptacle, switch, and wires in junction boxes out about two inches from box. Clean out all mud and dirt from box and receptacle or switch. Do not remove electrical connections. Leave boxes open.

4. Remove all fuses and cover from entrance panel. Clean out all mud. Wires can be moved but do not disconnect.

After above has been done and wiring has had a chance to dry, the electrician can check the system without delay.

For some equipment, such as pumps, a temporary line can be installed by an electrician until the permanent wiring has a chance to dry.

Appliances

Here are some general rules to follow:

(1) Motorized appliances -- Remove the electric motor and take it to an electrical repair shop. The controls (Thermostat, pressure switches, wiring, etc.) will have
to be cleaned and dried. Insulation should be dried and all dirt removed. Sealed units on refrigerators and freezers should not be harmed by water. Clean up unit and recondition controls.

(2) Heating appliances - Disconnect and flush with clean water. Float out water with carbon tetrachloride. (Be careful of carbon tetrachloride fumes -- they are dangerous if inhaled. Do the job in open air and do not smoke.) The insulation on hot water heaters will be soaked. Remove all panels and if possible the top of the heater. This will give the insulation a chance to dry. Clean and dry thermostat and wiring. Apply rust inhibitor to all metal parts.

(3) Lamps and lights -- Remove fixtures that were submerged. Clean outlet boxes and wiring. Clean fixture and dry out wiring. Check socket for dirt. Floor or table lamps should be completely disassembled and cleaned. Clean up wiring, sockets, and switches. If switches cannot be opened for cleaning, replace with new switch. Unless the cord is in good shape, replace it. Check the plug.

(4) Extension cords -- Any cords not in excellent condition should be thrown away. Fabric-covered cords should be replaced. Rubber-covered cords in good condition (no cracks in rubber, etc.) can probably be reclaimed. Remove connections from both ends. Peel back the rubber covering until inside braid is dry. Cut off damaged part of cord. Clean up the plug and receptacle and connect to cord or replace with new ones.

(5) Grounding -- For your protection, all metallic appliances should be grounded when in use to prevent an electrical shock. This applies especially to such appliances as washers, driers, ranges, waffle irons, etc., and to equipment such as portable drills, saws, and grinders. Attach a wire from the frame of the appliance to a water pipe or to the ground wire in a grounded wiring system.

BE SAFE, Do not use electricity until wiring and equipment have been inspected by a competent person.

Sewing Machines Damaged By Flood Waters

If an electric sewing machine has been covered with water, take the motor off first. It should be checked by a good electrician before it is used again.

The head of the machine must be cleaned with a solvent.

Parts and sewing machine attachments affected by water should be soaked in kerosene or other suitable cleaner, then drained and soaked in oil. After drying with a soft cloth to remove oil, any parts affected by rust should be taken to the local sewing machine agency. For further information, ask your county agent for the circular "Cleaning and Adjusting Your Sewing Machine," E.C. 791

Salvage of a flood-damaged cabinet depends to a great extent on how much of it was under water and how long. Usually it isn't possible to make a definite decision on whether or not the cabinet can be salvaged until it has been allowed to dry for a month or two. By that time, any veneer weakness or core damage will show up as warping, splitting or lifting of the veneer.

For further information, contact your county Extension agent.
CARE OF FLOORS, WALLS AND DOORS

Mrs. Jerre L. Withrow
Extension Specialist in Housing

Smooth-Surface Floor Coverings

Water coming into the house through the doors and windows may cause less damage to the floors than water coming up from below. The floor covering will protect the floor to some extent if the water does not remain on it for too many days. Long submersion, on the other hand, will loosen adhesives. Warping of wooden floors will result from too long exposure to water. This will cause tiles to loosen and sheet linoleum to bulge.

Rubber and asphalt tiles and inlaid linoleums which are glued to the floor may buckle. If water remains between the floor and the floor covering, it may be necessary to slash the linoleum in the places where it has buckled, or to remove the loose pieces of tile, until the water has evaporated. Then the covering may be re-glued in place.

Sheet linoleum presents the biggest problem, because the water may seep under a large section. In this case it may be necessary to remove the entire sheet. If carefully removed, the sheet may often be re-cemented after the floor has thoroughly dried. This may take as much as six weeks. An entire new sheet of lining felt would be needed.

If linoleum is broken, brittle, and cannot be salvaged, remove with a chisel or hoe. Let floor dry thoroughly before laying any type of floor covering.

Silica gels, obtainable from stores which handle supplies from chemical companies, are excellent materials to use to absorb excess moisture from rooms, storage closets, chests of drawers, and trunks.

Ventilation and heat will help to dry the house which has endured floods.

Doors

Take the knobs from the doors and lay the doors on a level surface with wooden strips separating them, to facilitate drying and to prevent warping and twisting out of shape. With veneered doors this is especially important. Veneered doors are very likely to be ruined by submersion, but some of them may be usable if they are are piled properly and dried carefully to prevent separation of the piles.

Locks, especially those of iron, should be taken apart, wiped with kerosene, and oiled. If it is not feasible to remove them, squirt in a little machine oil through the bolt opening or the keyhole, and work the knobs so as to distribute the oil. Otherwise the springs and metal casing will soon rust and need replacing. Do not use too much oil or it will drip onto the woodwork and make later painting difficult.
Walls

Do not attempt to wash damp plaster; it should not be rubbed or cleaned until it is bone dry. Then it may be rubbed uniformly and lightly with sponge rubber, or a good wallpaper cleaner. With care, plaster may be wiped with a slightly damp cloth and dried immediately. Leave badly stained walls for treatment when final redecoration is to be done. Wash washable wallpaper the same as a painted wall. Work quickly so paper does not become soaked.

Wallpaper

Wallpaper hanging from walls and ceilings is difficult to replace because it is brittle and is likely to be badly stained. Ordinarily, tear it off and redecorate when convenient. Small sections of wallpaper may be stuck in place.

Repaste edges or sections loosened. Use a commercially prepared paste or make your own as follows: Mix 2 pounds wheat flour and 1 quart cold water to a smooth paste; stir in 2 quarts of boiling water and continue boiling until paste is semi-transparent; add 1 pounce of alum that has been dissolved in 1/2 cup of hot water.

Painted Walls

Use water with mild soap or a commercial cleaner. Wash a small area at one time, working from the floor up; rinse with clean water immediately. Wash the next part, overlapping the first part until the wall is finished. Ceilings should be done last. Badly stained walls will need redecorating.

For further information on this subject, contact your county Extension agent, or write to the Department of Home Economics, College of Agriculture, Lincoln, Nebraska.
Clothing salvaged from flooded homes needs immediate attention to prevent mildew and unpleasant odors which are difficult to remove from the garments.

If the clothing is washable, rinse thoroughly in cold water as soon as possible. Then wash in warm water with soap or detergent. Sponging with rubbing alcohol will help remove traces of stains. Dilute the alcohol in the proportion of 1 part of alcohol to 2 parts of water for colored fabrics and fibers other than cotton.

Drying in the sun helps remove mildew stains. If the stain persists, a bleach such as lemon juice and salt, or a tablespoon of sodium perborate bleach to a pint of lukewarm water may be used.

If garments are to be sent to the dry cleaners and are partially dry, it is well to dry them out completely in cool air. Brush well before sending them to the dry cleaner. Give the cleaner full information on what caused the damage, and if possible provide information as to fiber content of the fabric. He has skills and techniques that can do wonders in restoring clothes.

Shoes and other leather articles need to be dried slowly and away from direct heat. Wash off all mud and grit with warm water.

Oil or grease rough or work shoes with warm neat's foot oil (a dressing for leather), cod or castor oil or tallow or wool grease. Rub well. For dress shoes, wax or a good shoe dressing or polish will help. Then dry the greased shoes in a warm place.

For further information on this subject, contact your county Extension agent or write to the Department of Home Economics, College of Agriculture, Lincoln, Nebraska.
EMERGENCY

FLOOD INFORMATION

SALVAGING FURNITURE

Take all wooden furniture outdoors and remove as many of the drawers, slides, or other working parts as possible. These will probably be stuck tight. Do not force the drawers with a screw driver or chisel from the front. Remove the back by cutting it out if necessary and push out the drawers.

After the various moving parts of the furniture have been removed in this way, clean off all mud and dirt, using a hose stream if necessary, and then take them all indoors again and store them where they will dry out slowly. Do not leave them out in the sun as they will warp and twist out of shape.

Some furniture, especially that made of solid wood, may be salvaged by regluing. Gluing, however, is fairly difficult to do at home because on many pieces it is necessary to use clamps. Before starting this task, decide whether it is worth while investing in this equipment and whether you have the time and ability to do the work. If you find the work too difficult to attempt, consult a cabinetmaker.

Veneered Furniture

Repairing veneered furniture is so difficult and requires so many different types of tools that it is not practical to try it at home. Get a cabinetmaker to do the job, or have the store from which you bought the furniture send it back to the factory to be repaired. If insurance allows part value on flood-damaged furniture, it may be worth while financially to apply the allowance on new articles rather than to pay for repairs on damaged items.

Removing White Spots

Furniture that has not been submerged may have developed white spots or a whitish film or cloudiness from dampness. If the whole surface is affected, try rubbing with a cloth wrung out of a mixture of 1/2 cup of household ammonia and 1/2 cup of water; wipe dry at once and polish with wax or furniture polish. For smaller areas or spots on varnished surfaces, rub with a cloth moistened with camphorated oil or oil of peppermint. A drop or two of ammonia on a damp cloth may do the work. Rub dry with a soft cloth and then polish. Cigarette ashes rubbed in with the finger tips are often effective in removing white spots. If all efforts to remove white blemishes are ineffective, it may be necessary to refinish the furniture.

Upholstered Furniture

Brush any loose dirt from upholstered furniture and shampoo the fabric. Follow directions given for carpets and rugs. Work quickly. If there is mildew on the fabric, wipe it with a cloth wrung out of dilute alcohol (1 cup denatured alcohol to 1 cup of water). Dry the furniture thoroughly.
If after cleaning, the upholstery looks faded or worn, a slip cover may be made using the method described in E.C. 57-1125, "How to Make Slip Covers."

If furniture has been wet for a long time, the stuffing may have become mildewed or may even have started to decay. It may be necessary to send the furniture to a reliable dry-cleaning or storage company for fumigating.

In cases of badly damaged upholstered furniture, especially any that has been submerged, stuffing may be so deteriorated that it needs to be replaced. Springs may need to be cleaned and oiled, and the frame cleaned. If much work is needed, the furniture should be sent to an experienced cabinetmaker or upholsterer unless you are confident of your own ability to do such work.

For further information on this subject, contact your county Extension agent or write to the Department of Home Economics, College of Agriculture, Lincoln, Nebraska.
Cropland that has been flooded almost always needs some work to restore its original productivity. Listed below are the operations, in logical order, needed to do this quickly:

1. Repair or rebuild dikes or levees.

2. Open mouths of tributary waterways or streams that are clogged with silt, sand and debris.

3. Clean out farm ditches and drains where needed to remove excess moisture from the soil. Work up from the lower end.

4. Clear tile drain outlets and check to see that drains are operating properly. Rebuild or repair any damaged outlet headwalls. Obstructions in the line can frequently be located by holes in the ground over the tile. Standing water over a tile line indicates that it is not operating satisfactorily. In making repairs, work upward from the outlet.

5. Remove excess water as quickly as possible. With approval of proper authorities, excavate through embankments to drainage ways to remove water by gravity. If water in drainage way is higher than that in field to be drained, install portable pumps on dike or ditch bank. To determine the number and sizes of pumps needed to drain an area, estimate the acreage covered and average depth of water.

A 25-acre field covered with water averaging three (3) feet deep contains 75 acre-feet of water.

A pump discharging 1350 gallons per minute or 3 cubic feet per second (450 gpm = 1 cubic foot per second), will remove 6 acre feet in 24 hours or 75 acre-feet in about 12 1/2 days. Five such pumps would remove 75 acre-feet in 2 1/2 days.

6. Land leveling may be needed to smooth rough areas, to spread deposits of sand or silt, and to fill holes scoured out by flood waters.

For minor leveling and smoothing, a float or drag may be used. To do best work, the drag should be comparatively long - at least 3 times its width.

For heavy leveling, filling ditches and holes, and spreading sand and silt deposits, bulldozers and graders can be used. Where available, large crawler tractors and carryalls will probably be the most economical.
7. Treat each field as needed. A competent soils man can help in determining the type and extent of special practices needed. Usually the deposits should be plowed under. This will bring the original underlying heavier soil and organic matter to the surface.

Ordinary farm tractors and high clearance plows may be used in plowing under deposits up to six inches in depth. Five or six inches of original ground should be brought to the surface. For depths from 9 inches to 6 feet, special plows are needed. Moldboard and disk plows which will operate at a depth of 16 to 20 inches are sometimes available from implement companies. For depths greater than 20 inches, it will probably be necessary to engage the services of a contractor having the proper equipment. After plowing and leveling a smoothing operation with a spring tooth harrow or other equipment will help mix the soils to provide a more uniform surface soil.

Have soil tested to determine the kind and amount of fertilizer needed. Nitrogen especially may be required. The application of fertilizer will be helpful in establishing a vegetative cover quickly.

Take care to keep vehicular traffic across fields to a minimum to decrease soil compaction and future water penetration problems.

For further information on this subject, contact your County Extension agent or write to the Department of Agricultural Engineering, College of Agriculture, Lincoln, Nebraska.
DISPOSING OF ANIMAL CARCASSES

As soon as floodwaters have subsided, search all pastures for dead animals. When dead animals are found, prompt and sanitary disposal is of great importance to the living animals in the area. It is good practice to dispose of all animal carcasses in a sanitary manner, even though the danger of disease may at the time seem remote. Wherever it is convenient, send carcasses of drowned animals to a rendering plant. Such carcasses may have some commercial value.

If rendering is not practicable, the dead animals should be disposed of on the premises. Immediately after finding a carcass, cover it with crude oil or kerosene to keep away dogs, buzzards, and vermin. Satisfactory burning of animal carcasses has been found extremely difficult,* and burial is preferable to burning, especially where a sufficient number of carcasses are present to justify importing power equipment. Choose a site where subsurface drainage will not reach the water supply of persons or livestock. Burial should be 3' to 4' deep, so that predatory animals cannot reach the carcasses. If quicklime is available, cover animals with it before back filling. It hastens decomposition.

*NOTE: Fat swine are the only exception. Used railroad ties are good starters.
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Floods have always plagued mankind. Modern farms are particularly vulnerable, and no effort should be spared to protect and rehabilitate them.

This publication is intended to help persons who have returned to flooded homes and farms and are clearing, rebuilding, and trying to reduce their losses. It contains information contributed by the U.S. Department of Agriculture, by some State agricultural colleges and universities, and by the U.S. Public Health Service; it also contains suggestions made by some other Federal agencies, by the American Red Cross, and by safety organizations.

Instructions from persons in charge of relief and recovery work will take precedence over some of the recommendations in this publication. Readers should consult county agricultural agents, home agents, and local officials for more specific information.

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Washington, D.C. 

Revised November 1964
First Aid for
FLOODED HOMES
and FARMS

Prepared by the U.S. Department of Agriculture

THE HOUSE

Entering Damaged Building

Before you enter a building, make sure it is safe and not about to collapse. Let your house air for several minutes to remove foul odors or escaped gas. Do not smoke or use open flame until you are sure that it is safe to do so. On going in, bear in mind there may be holes in the floor or loose boards with nails sticking up. After dark use a flashlight to avoid igniting escaped gas. Do not turn on an electrical system; it may have become short-circuited. Turn off gas at meter or tank.

Doors and windows that have been submerged will probably be swollen tight. When entrance must be made by force because of swollen doors, accumulated mud, or bulged floors, enter by a window or other opening, and then remove the pins of the door hinges by lifting them with a screw driver and a hammer. Be sure the door is unlocked and then push it in from the outside, trying not to damage it.

Look for loose plaster ready to fall from the ceiling, and break it down with a stick before moving around in the building. Wet plaster is heavy and is dangerous if loose. Watch for more loose plaster as the house dries out.

Drying and Cleaning

Open all doors and windows to dry out the house, since both air and heat are essential. If windows are swelled so that they cannot be raised, take off the small strip that holds in the lower sash (use a chisel carefully to avoid marring woodwork), force the sash up slightly, and remove it from the frame by pushing it from the outside into the hands of a helper. Be careful not to break the glass.

Examine foundation and basement walls to make certain that they have not been undermined. If walls show evidence of settling or cracking, it may be necessary to dig down to the footings and reinforce or replace any sections that have settled.
Filling under footings that have been undermined should be done with masonry or concrete, never with earth or gravel. Piers that have tilted or settled may need to be replaced. If the building is out of plumb or if the floors have settled or bulged, make sure that the foundation is sound and that the framing, such as sills, girders, and joists, is free from termite damage before renovating. If the building has to be moved, expert help should be called in unless the structure is a simple one.

Directions for repairing defects in foundations are given in detail in Farmers' Bulletin 1869, “Foundations for Farm Buildings.” When making repairs, replace damaged wood with sound wood. Home and Garden Bulletin 73, “Wood Decay in Houses: How To Prevent and Control It,” makes suggestions for ventilation, protective construction, and use of treated timber in places where it is most difficult to keep wood protected from moisture.

Basements should be drained and cleaned as soon as the building is found to be safe. Pump or bail the water from the cellar and shovel out the mud while it is moist, to give basement floors and walls an opportunity to dry. Remove the mud from the furnace, flues, and smoke pipe. Detailed directions for cleaning main-floor rooms are given on page 8.

No rush to move in.—The house should be clean and dry before any attempt is made to live in it. The premises should be drained of all remaining pools of water. Driftwood, rubbish, and decaying vegetation left in the yard should be removed, burned, or buried. If the house or porches rest on open foundations, take care to see before you attempt to remove debris from underneath that there is no danger of the structures collapsing. Walks and fences damaged by floodwaters are also a hazard until replaced or repaired.

If conditions are such that these things cannot be done, the situation should be reported at once to the county agricultural extension agent or the home agent. They may be able to obtain assistance from the Red Cross or other agencies. Family and community health must be guarded for the good of all.

**Electric Circuits**

Do not turn on lights or appliances until the whole system has been checked by an electrician for short circuits. Wear rubber-soled shoes or boots and rubber gloves. Turn off main switch for each building or at the yard pole, being careful to stand on a dry board, and avoid touching metal handle of switch box by using a piece of rubber, plastic, or dry wood. Water is likely to have gotten into conduits, connection boxes, etc., and damp-
ness or exposed wires can cause short circuits and fires or even electrocute a person replacing fuses, especially if he stands on a wet surface.

If a sump pump is available and needed, remove all fuses except the main fuses and the one controlling the sump pump; then carefully turn on the main switch to see if the pump will operate. See section on "Cleaning Electric Generators and Motors," page 20.

The Heating System

Hot-Air Heating Plant

Before starting a fire in a hot-air heating plant, examine the inside of the heater and wash the sediment from the flues with a hose or a swab on a long stick. The flues can generally be reached through the clean-out doors above the fire door. If the heater is jacketed, clean out all mud between the stove and the outside casing. It may be necessary to remove the casing. If the flues or passages are choked with mud, a boiler may burst when a fire is started. Take the smoke pipe out of the chimney, and reach through the thimble to remove any mud from the lower part of the chimney flue, to be sure there will be a draft for the fire, to guard against spilling out of dangerous carbon monoxide gas, and to avoid smoking up the house.

Oil-Burning System

In oil-burning systems, the storage tank should be inspected by an experienced person to make sure that seams have not been opened, allowing water and dirt to enter. The burner should be dismantled and all parts cleaned in kerosene and wiped dry. The air blower and fuel pump should receive attention. housings enclosing gears should be removed and gears thoroughly cleaned with kerosene. Any grit left in gears will cause undue wear.

Caution: Kerosene-soaked rags should be burned out of doors. They should never be washed in an automatic washer, because of the danger of explosion.

Electric Motors

Small electric motors may be dried out in an oven at not more than 150°F. If you are accustomed to working with electric motors, take the motors out after 6 or 8 hours and test them. If there is still evidence of grounding or short-circuiting, put them back in the oven for 2 to 4 hours, then test again. See also the section on "Cleaning Electric Generators and Motors," page 20. Caution: If you are not accustomed to working with electric motors, do not run the risk of electric shock; get a technician to test the motors.

Chimneys

Any chimney that has been subjected to water action should be inspected promptly. Fires and carbon monoxide gas poisoning can result from use of defective chimneys. If mortar in the joints between the bricks has disintegrated, the chimney should be repointed with masonry cement. If the chimney has settled badly or broken where it passes through floors or roof, it may need to be rebuilt before being used. Most chimneys rest on a footing in the ground. If there is evidence of settling or tilting of the chimney, the first step is to examine the footing to see whether or not it has been undermined.

For additional information on heating systems, see Farmers' Bulletin 1889, "Fireplaces and Chimneys," and Miscellaneous Publication 689, "Your Farmhouse . . . Heating."
Water Supplies, Plumbing, and Sanitation

A safe supply of drinking water and sanitary disposal of sewage are among the most important factors contributing to safeguarding the health of the family.

If your water comes from a well, cistern, or spring, ask your health department to make sure that it is safe, and to tell you how to keep it safe.

When ground water is not available and surface water must be used, avoid sources containing floating material or water with a dark color or an odor. The water taken from a surface source should be taken from a point upstream from any inhabited area and dipped, if possible, from below the surface.

When the home water supply system is interrupted by natural or other forms of disaster, limited amounts of water may be obtained by draining the hot water tank or melting ice cubes.

Disinfecting Water

There are two general methods by which small quantities of water can be effectively disinfected. One method is by boiling. It is the most positive method by which water can be made bacterially safe to drink. Another method is chemical treatment. If applied with care, certain chemicals will make most waters free of harmful or pathogenic organisms.

When emergency disinfection is necessary, the physical condition of the water must be considered. The effectiveness of the disinfectant will be reduced in turbid water. Turbid or colored water should be filtered through clean cloths or allowed to settle, and the clear water drawn off before disinfection. Water prepared for disinfection should be stored only in clean, tightly covered, noncorrodible containers.

Boiling for 10 minutes will kill any disease-causing bacteria present in water. The flat taste of boiled water can be improved by pouring it back and forth from one container to another, by allowing it to stand for a few hours, or by adding a small pinch of salt for each quart of water boiled.


2. Chemical Treatment. When boiling is not practical, chemical disinfection should be used. The two chemicals commonly used are chlorine and iodine.

a. Chlorine

(1) Chlorine Bleach. Common household bleach contains a chlorine compound which will disinfect water. The procedure to be followed is usually written on the label. When the necessary procedure is not given, one should find the percentage of available chlorine on the label and use the information in the following tabulation as a guide.

<table>
<thead>
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<th>Available chlorine (%)</th>
<th>Drops per quart of clear water</th>
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<td>1-4</td>
<td>10</td>
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<td>4-6</td>
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1 If strength is unknown add 10 drops per quart to purify.
2 Double amount for turbid or colored water.

The treated water should be mixed thoroughly and allowed to stand for 30 minutes. The water should have a slight chlorine odor; if not, repeat the dosage and allow the water to stand for an additional 15 minutes. If the treated water has too strong a chlorine taste, it can be made more palatable by allowing the water to stand exposed to the air for a few hours or by pouring it from one clean container to another several times.

(2) **Granular Calcium Hypochlorite.** Add and dissolve 1 heaping teaspoon of high-test granular calcium hypochlorite (approximately ¼ ounce) for each 2 gallons of water. **• • •** To disinfect water, add the chlorine solution in the ratio of 1 part of chlorine solution to each 10 parts of water to be treated. This is roughly equal to adding 1 pint (16 oz.) of stock chlorine solution to each 12.5 gallons of water to be disinfected. To remove any objectionable chlorine odor, aerate the water as described above.

(3) **Chlorine Tablets.** Chlorine tablets containing the necessary dosage for drinking water disinfection can be purchased in a commercially prepared form. These tablets are available from drug and sporting goods stores and should be used as stated in the instructions. When instructions are not available, use one tablet for each quart of water to be purified.

b. **Iodine**

(1) **Tincture of Iodine.** Common household iodine from the medicine chest or first aid package may be used to disinfect water. Add 5 drops of 2 percent United States Pharmacopoeia (U.S.P.) tincture of iodine to each quart of clear water. For turbid water add 10 drops and let the solution stand for at least 30 minutes.

(2) **Iodine Tablets.** Commercially prepared iodine tablets containing the necessary dosage for drinking water disinfection can be purchased at drug and sporting goods stores. They should be used as stated in the instructions. When instructions are not available, use one tablet for each quart of water to be purified.

Water to be used for drinking, cooking, making any prepared drink, or brushing the teeth should be properly disinfected.

**Care of Plumbing**

Test drains of plumbing fixtures, water closets, and basement drains by pouring in a bucket of water. If they are clear of obstruction, the water will run away. If they are stopped up, remove the clean-out plug from the trap (a U-, P-, or S-shaped pipe will be found under most such fixtures), and rake out the mud with a wire. Water-closet and drain traps can be cleaned with water and a swab, or by rodding with a plumber’s “snake” or sometimes with a wire.

It may be necessary to disassemble and clean check valves and other backflow preventers.

Many privies will have been washed away by floodwaters and others will be so wrecked that they should be replaced. Before building a new one, consult the local health authorities and get plans for building a sanitary privy.

**Sewage and Garbage Disposal**

Swamped sanitary disposal installations imperil the health of man and animals in flooded areas. The domestic water supply is almost sure to become contaminated. It is necessary to get the septic tanks, cesspools, pits, and leaching systems back into service as soon as practicable. Useful advice on cleaning, repairing, or relocating installations may be obtained from local or State health departments or from the United States Public Health Service.

Local and State health departments have responsibility for enforcement of health measures and have people trained to help you. Any problems relating to water purity, waste disposal, or rodent control should be referred to them. They can also help you with many insect problems.

Some garbage can be burned. Garbage that will not burn should be buried in a pit 4 or 5 feet deep, and covered with at least 18 inches of soil. Garbage fed to animals should be cooked to prevent spread of disease.

For additional information, see Agriculture Information Bulletin 274, "Farmstead Sewage and Refuse Disposal."

For information on fly control, see page 23.

**Combating Odors**

Odors in basements, although unpleasant, are not necessarily harmful to health. If ventilation does not remove them, sprinkle bleaching
powder (chloride of lime) over the basement floor. Allow it to stay there until the floor dries, then sweep it up. This material is a good disinfectant.

**CAUTION.**—Bleaching powder is caustic and poisonous, Before sprinkling it on the basement floor, read the label on the container. Follow the directions and heed all precautions on the label. . . . Keep bleaching powder out of the reach of children. . . . Keep it out of the eyes and mouth. . . . Provide good ventilation in the basement while sprinkling the floor; keep windows and doors open. . . . Store bleaching powder in a tightly closed container; store it away from moisture, where children cannot reach it. . . . When the container is empty, dispose of it in a tightly covered refuse can.

Dry lump charcoal exposed in several open containers may adsorb the odorous substances from the air in enclosed spaces.

**CAUTION.**—Charcoal is highly combustible when it is moist or wet. Guard against spontaneous combustion and spread of fire. . . . The open containers in which charcoal is exposed to the air should be of hard metal and should be placed away from materials that catch fire readily—for example, flammable liquids and gases, cloth, coal, and firewood. Tin cans are satisfactory containers. . . . Charcoal should be stored in a well-ventilated place; it should be kept dry and clean.

**Household Mechanical Equipment**

Have motors for pumps, refrigerators, freezers, ranges, washing-machines, vacuum cleaners, food mixers, and other household equipment examined by a competent person to see that they are clean, dry, and free-running before turning on the current, or they may be ruined.

Power washing machines should be thoroughly cleaned before being put into use. Gear housings should be opened and shafts and gears cleaned with kerosene. Wipe all parts with a clean cloth. Grit not readily seen by the eye may cause wear to moving parts when they are put into operation. (See also sections on "Cleaning Electric Generators and Motors," p. 20, "Electric Circuits," p. 4, and "How to Check Your Electric Wiring," p. 21.)

Clean all parts without forcing any dirt into the bearings. Wipe metal surfaces with rag wet with kerosene to remove rust and dirt stains, and coat thinly with petrodatum or machine oil to prevent further rusting. Before using, oil the bearings and, using a soft cloth, dry surfaces exposed to hands or clothing.

In modern refrigerators, the cooling systems, including motors, are hermetically sealed. They cannot be cleaned or checked, but their construction should rule out damage by immersion in water. In old refrigerators, the cooling unit is accessible and should be examined and cleaned.

It is safest to let technicians inspect household machines and make repairs, especially of motors and power driven appliances. Cooperation in the employment of electricians to collect and recondition the motors in a central shop may be practicable. (See also instructions under "Cleaning Farm Equipment," p. 18.)

**Floors, Woodwork, Doors, and Roofs**

**Repairing Buckled Floors**

After the accumulation of wet mud and dirt has been shoveled from the floors, they will in all probability be found badly buckled. Do not attempt to repair them until
they have fully dried. Start the heating plant as soon as it is in condition to operate, but don't use so much heat that the house becomes steamy. Dry wood as fast as you can without aggravating shrinkage or deformation. Open windows and doors wide enough to give good ventilation but maintain a temperature of 50° to 60° F. or higher in the house.

After the house is dry, it may be possible to draw some of the buckled flooring back into place with nails. Some humps may be removed by planing or sanding. The work can be lightened considerably if a planing or sanding machine can be rented. Such floors planed heavily may never look well enough to be used uncovered. But an old floor smoothed can serve as a base for new flooring. Or, when smoothed, the old floor may be covered with one of the resilient smooth-surface floor coverings. If badly buckled, the floor may have to be taken up and a new floor laid. If only the surface finish is damaged, the floor may be refinished.

**Cleaning Woodwork and Floors**

Before the house is dried out, scrub all woodwork with a stiff brush, plenty of water, and a detergent to remove mud and silt from corners, cracks, and crevices.

Water may accumulate in partitions and exterior walls. Drain these areas as quickly as possible so that insulation and structural members can dry. Remove the baseboard and drill holes between studs a few inches above the floor. After the insulation and frames have dried, replace baseboard.

For a final, thorough washing of floors, use whatever cleaning product you use for regular care—preferably a nonsudsing one. If refinishing is necessary, put off doing the work until the moisture has dried from the wood itself—from the framing, from between walls and floors, and from the back of the trim, even though this may take several months. Consult an experienced painter in regard to refinishing. Or if you can do the work yourself, be guided by instructions on cans of standard brands of paints and varnishes for household use.

**Surface Mold of Wood**

Use heat and ventilation to get mildewed wood as dry as possible. Badly infected wood may need to be replaced, preferably with wood that has been treated or that is naturally decay resistant.

Clean mildewed floors, woodwork, and other wooden parts by scrubbing them with a mild alkali, such as washing soda or trisodium phosphate (4 to 6 tablespoons to a gallon of water). Paint stores and grocery stores sell these products under

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**A nonsudsing product is preferred for washing the floor.**
various trade names. Rinse well with clear water and allow the wood to dry thoroughly. Then apply a mildew-resistant paint. Mildew-resistant paint contains fungicide and should not be used on playpens, cribs, or toys.

If mold has grown into the wood under paint or varnish, scrub the wood with an abrasive cleaner, then wash with a solution containing 4 to 6 tablespoons of trisodium phosphate and 1 cup of household chlorine bleach to a gallon of water. Finally, rinse the wood well with clear water. Dry thoroughly and apply a wood preservative before repainting.

For further information, see Home and Garden Bulletin 68, "How To Prevent and Remove Mildew: Home Methods."

Taking Care of Locks and Hinges

Locks, especially those of iron, should be taken apart, wiped with kerosene, and oiled. If it is not feasible to remove them, squirt in a little machine oil through the bolt opening or the keyhole, and work the knobs so as to distribute the oil. Otherwise the springs and metal casing will soon rust and need replacing. Do not use too much oil or it will drip onto the woodwork and make later painting difficult. Cleaning and oiling usually will put hinges in order.

Repairing Roofs

Damaged roof coverings may be repaired temporarily with material immediately at hand and later repaired by one of the methods described in Farmers' Bulletin 2170, "Roofing Farm Buildings."

Plastered Walls and Wallpaper

Allow plaster to dry thoroughly before washing it. Brush off any loose surface dirt. To wash a painted wall use water with mild soap or any commercial cleaner that you have found satisfactory for the purpose. (Professional renovators prefer nonsudsing products.) Have one bucket for the cleaning solution, another for clean water for rinsing, and large sponges for both.

Always start washing a wall at the bottom and work up. Starting at the top is likely to result in water running down over the soiled area and streaking it. Water running down over a clean area can be wiped off without damage. Wash an area that you can reach easily without changing your position; rinse it immediately. Then wash the next area, overlapping the first one, and proceed until the wall is finished. Ceilings should be done last. Badly stained walls will need redecorating.

After the walls have been cleaned and before the wallpaper is replaced, paint or thoroughly spray the walls with a quaternary disinfectant (available from janitor- or dairy-supply outlets). Add 1 ounce (2 tablespoons) of the disinfectant to 2 gallons of water. This will make the walls mildew resistant. The same solution may be applied on washable wallpapers.

Wallpaper that has been wet usually is so discolored and brittle that it must be removed and the walls repapered. If paper has not been wet but some edges or sections have been loosened by dampness, it may be possible to repaste them. Use a purchased wallpaper paste or make your own as follows:

Mix 2 pounds wheat flour and 1 quart cold water to a smooth paste; stir in 2 quarts of boiling water and continue boiling until paste is semitransparent; add 1 ounce of alum that has been dissolved in ½ cup of hot water.

To clean wallpaper, use a purchased puttylike cleaner. Some wallpapers are washable. Before attempting to wash paper try a small inconspicuous spot to see whether it can be done satisfactorily. Use only mild soap or synthetic de-
tergent and proceed as for a painted wall. Squeeze as much water as possible out of the cleaning and rinsing sponges and work quickly so that paper does not become soaked.

To remove grease spots from wallpaper, cover with a paste made by mixing drycleaning fluid with cornstarch or talcum. Allow to dry and brush off. Repeat if necessary. **Caution:** Fumes from all drycleaning solvents are toxic. Some drycleaning solvents are flammable. Use only with adequate ventilation. Read the label to determine hazards and the precautions needed.

**Salvaging Furniture**

Take all wooden furniture outdoors and remove as many of the drawers, slides, or other working parts as possible. These will probably be stuck tight. Do not force the drawers with a screwdriver or chisel from the front. Remove the back by cutting it out if necessary and push out the drawers. After the various moving parts of the furniture have been removed in this way, clean off all mud and dirt, using a hose stream if necessary, and then take them all indoors again and store them where they will dry out slowly. Do not leave them out in the sun as they will warp and twist out of shape.

Some furniture, especially that made of solid wood, may be salvaged by regluing. Gluing, however, is fairly difficult to do at home because on many pieces it is necessary to use clamps. Before starting this task, therefore, decide whether it is worth while investing in this equipment and whether you have the time and ability to do the work. If you find the work too difficult to attempt, consult a cabinetmaker.

Repairing veneered furniture is so difficult and requires so many different types of tools that it is not practical to try it at home. Get a cabinetmaker to do the job, or have the store from which you bought the furniture send it back to the factory to be repaired. If insurance allows part value on flood-damaged furniture, it may be worth while financially to apply the allowance on new articles rather than to pay for repairs on damaged items.

**Removing White Spots**

Furniture that has not been submerged may have developed white spots or a whitish film or cloudiness from dampness. If the whole surface is affected, try rubbing with a cloth wrung out of turpentine or camphorated oil; wipe dry at once and polish with wax or furniture polish. If color is not restored, dip 3/0 steel wool in oil (boiled linseed, olive, mineral, lemon) and rub lightly with the grain of the wood. Wipe with a soft cloth and rewax. A drop or two of ammonia on a damp cloth may be needed for deep spots. Rub at once with a dry cloth, then polish. Cigarette ashes rubbed in with the fingertips are often effective in removing white spots. If all efforts to remove white blemishes are ineffective, it may be necessary to refinish the furniture.

**Mildew**

First remove loose mold from outer coverings of upholstered articles, mattresses, rugs, and carpets by brushing with a broom. Do this outdoors if possible to prevent scattering mildew spores in the house. Run a vacuum cleaner attachment over the surface to draw out more of the mold. Do everything conveniently possible to dry the article—use an electric heater and a fan to carry away moist air. Sun and air the article to stop the mold growth.

If mildew remains on upholstered articles or mattresses, sponge lightly with thick suds of soap or
synthetic detergent and wipe with a clean, damp cloth. In doing this, get as little water on the fabric as possible so the padding material does not get wet.

Another way to remove mildew on upholstered furniture is to wipe it with a cloth wrung out of dilute alcohol (1 cup denatured or rubbing alcohol to 1 cup water). Dry the article thoroughly.

Use a low-pressure spray containing a fungicide to get rid of musty odors and mildew; respray frequently, especially in localities where mildew is a major problem. All surfaces must be moistened thoroughly. Space spraying by aerosol techniques is not effective for the control of fungi.

Vapors of paradichlorobenzene or paraformaldehyde used in closed areas as directed will stop mold growth.

If molds have grown into the inner part of an article, send it to a drycleaning or storage company for thorough drying and fumigation. Fumigation will kill molds present at the time but will not protect the article against future attacks.

More detailed information is contained in Home and Garden Bulletin 68, "How To Prevent and Remove Mildew: Home Methods."

**Stuffing and Springs**

In cases of badly damaged upholstered furniture, especially any that has been submerged, stuffing may be so deteriorated that it needs to be replaced. Springs may need to be cleaned and oiled, frame cleaned. If much work is needed, the furniture should be sent to an experienced cabinetmaker or upholsterer unless you are confident of your own ability to do such work.

**Metals**

Clean metal as soon as possible, especially iron. Wipe rust from iron with a cloth saturated with kerosene. Iron hardware can then be coated lightly with petrolatum or machine oil to prevent further rusting. Use stove polish on stoves or similar ironwork. Wash cooking utensils thoroughly with soapy water to remove the kerosene; to prevent further rusting, rub with unsalted cooking fat and heat slowly to permit the fat to soak into the pores of the metal.

Stainless steel, nickel-copper alloy, or metals plated with nickel or chromium need only thorough washing and perhaps polishing with a very fine-powdered cleaner. If the plating of furniture or hardware is broken so that the base metal is exposed and rusted, wipe with kerosene, wash and dry the surface, and then wax to prevent further rusting.

Wash aluminum thoroughly and scour any unpolished surfaces, such as the insides of utensils, with soap-filled metal scouring pads. Polished or plated surfaces of aluminum should not be scoured but should be polished with silver polish or fine cleaning powder. To brighten the darkened insides of an aluminum pan, fill it with water, add 1/4 cup of vinegar or 1 tablespoon of cream of tartar for each quart of water and boil 10 to 15 minutes. Then scour with a soap-filled metal pad. If the utensils have submerged and are darkened both inside and out, prepare one of these acid solutions in a large container and immerse utensils in it; then proceed with the treatment described.

Copper and brass can be polished with a special polish or with salt sprinkled on a piece of lemon or on a cloth saturated with vinegar. Wash utensils thoroughly after treatment.

**Care of Books**

Books and papers should be dried carefully and slowly. Books should be placed on end to dry and the leaves kept apart. After ex-
posure to the air for a time they should be piled and pressed to keep the leaves from crumpling. This alternate drying and pressing should be continued until the materials are thoroughly dry, so as to prevent mildew. If books are very damp, sprinkle cornstarch or talcum between the leaves to take up the moisture; leave for several hours and then brush off. A little heat and separating of the pages are desirable toward the end of the process, to prevent musty odors.

Use a mildew inhibitor—paradichlorobenzene or paraformaldehyde—to stop mold growth. (See Home and Garden Bulletin 68, “How To Prevent and Remove Mildew: Home Methods.”)

FOODS, CLOTHING, AND HOUSEHOLD TEXTILES

Saving Damaged Foods
Floodwaters carry filth and disease bacteria from sewage systems, backed-up sewage, and barnyards. Foods, drugs, medical supplies, or cosmetics that have been covered by floodwaters may be unsafe to use.

Precaution Against Disease
You can help to prevent typhoid and other dangerous diseases in the following ways:
Destroy fresh fruits and vegetables, foods, medicines, and cosmetics in cardboard containers and other packages that are not hermetically sealed if they have been in contact with floodwaters. This includes flour and other commodities in bags.
Destroy the contents of crown-capped bottles and screw-top glass containers, including canned food in glass jars, if the containers have been covered by floodwaters. Seepage can carry harmful bacteria into the contents of all but the most tightly sealed containers.

Disinfecting Containers
Experience has shown that the only flood-damaged foods that are entirely safe for salvage are those in sealed metal cans, but such containers should be carefully cleaned and disinfected before opening. Here is how to do it:
(1) Inspect cans and destroy any which bulge or leak (indications of spoilage).
(2) Remove labels and wash containers in warm water containing soap or detergent.
(3) Immerse containers in chlorine solution containing 200 parts per million of chlorine for at least 2 minutes. The proper strength solution can be made by adding 1 tablespoon of 5-percent household laundry bleach to each gallon of water. Use more of the bleach if it is weaker than 5 percent. Rinse the cans in clean water.
OR—Immerse in some other sterilizing solution if recommended by local authorities. Rinse in clean water.
OR—Place containers in boiling water and boil vigorously for at least 10 minutes. Dry cans to prevent rusting. Relabel the cans.

Chlorine and most other sterilizing solutions are poisonous. Take precautions that the chemicals will not be swallowed by members of the family, pets, or livestock.

Government Inspection
Inspectors of the Food and Drug Administration cooperate with local and State health officials to check commercial supplies of foods, animal feeds, drugs, and cosmetics that have been exposed to floodwaters. They supervise the proper cleansing and disinfecting of sealed containers, and the destruction of goods that are unfit for use. Most retailers and distributors cooperate
You can help them to guard against distribution of contaminated goods. Avoid strangers selling food at suspiciously low prices. Report them and the license numbers of their cars or trucks to health officials. Report also to health officials the movement or sale of foods that you suspect to be flood damaged.

**Cleaning Clothing and Bedding**

To clean mud-stained washable clothing and household articles, first brush off all loose dirt, then remove as much mud as possible by rinsing in cool water. When no more dirt can be rinsed out, wash as usual. Be sure to use enough detergent to keep the finely divided soil from redepositing on the fabrics.

If stains cannot be removed by washing, use a bleach (see below). Bacteria can remain alive in and on fabrics for long periods. Since floodwaters often carry disease-producing bacteria, the use of a disinfectant in some phase of the laundry cycle is recommended. Four types of disinfectants—quaternary, pine oil, phenolic, and chlorine (a liquid chlorine bleach)—are effective. See Home and Garden Bulletin 97, "Sanitation in Home Laundering."

**Cleaning Woolens**

To clean washable woolen clothes and blankets, first shake and brush well to remove as much dirt as possible. Next rinse several times in lukewarm water to remove particles of soil lodged in fibers. Then prepare an abundance of lukewarm suds from neutral soap; or use a synthetic detergent recommended for laundering fine fabrics. The use of a disinfectant is also recommended (see above). Liquid chlorine disinfectant should not be used on wool. Immerse the wool material and work it gently in the suds or detergent solution with as little agitation as possible. If necessary, wash in a second lukewarm suds. Rinse carefully in several changes of lukewarm water.

Woolens should be dried in a warm place but not near a fire or in direct sunlight. Never allow them to freeze. Hang knitted underwear from the shoulders. Spread sweaters and other knitted garments on a table and shape according to desired dimensions.

Press wool garments while they are still damp with a medium-hot iron, or allow to dry and press on the wrong side with a steam iron. If ironing is done on the right side, protect the surface with a pressing cloth. Be sure to leave a little moisture in the wool or it will look hard and lifeless.

Hang each blanket over two parallel lines so it forms an M shape; this will distribute weight and allow air to circulate over both surfaces at the same time.

**Removing Mildew and Other Stains**

Mildew stains are caused by a fungus growth. If mildew has penetrated the fibers and has been there for some time, the stain cannot be removed without damaging the cloth. Household bleaches (liquid or granular chlorine bleaches, and powdered bleaches containing sodium perborate or monopersulfate) can be used to bleach mildew stains. Do not use chlorine bleaches on wool, silk, or cottons with chlorine-retentive resin finishes. Check dyed fabrics for colorfastness. It may not be possible to remove mildew from some colored fabrics without also changing the color of the dye.

Remove iron rust and some dye stains with a color remover. It can be bought at drug stores under various trade names. Follow the directions given on the package and rinse well in water.

Many faded and stained garments and household articles can
be made usable by redyeing, if the fabrics are still good. Usually it is easier to dye a fabric a deeper shade of the same color than it is to change to a new color.

**Care of Bedding**

Mattresses soaked with floodwater are generally damaged beyond use and should be discarded, as reconditioning is too difficult to be done at home. A sufficiently valuable mattress or one of the insprings type may be sent to a commercial renovating company, where the stuffing will be taken out and thoroughly cleaned, the ticking cleaned and resized, and the whole put together again in a mattress frame.

Transfer the feathers from the pillows to a muslin bag two or three times the size of the ticking. First sew the edges of the openings of the ticking and the bag together, then shake the feathers from one into the other. Wash the bag of feathers in lukewarm soapsuds, repeat, and rinse in lukewarm water, changing the water several times. Squeeze out all of the water possible, and lay the bag flat on a sheet to dry in the sun or in a warm place, or pin it to the clothesline to dry in the open air. Another good way is to lay it flat on a window screen which has been propped up off the ground. Shake up the feathers occasionally to hasten the drying.

Foam rubber pillows, if left in their covers, may be washed in a home-type washing machine and air dried. Do not use an automatic drier or drycleaning solvents. If possible, both pillows and mattresses should be sent to a reliable disinfecting and fumigating service. Such services are often listed under "Pest control" or "Fumigating services."

If a pillow has stood for a long time in floodwater, it may be impossible to remove all traces of offensive odor. While the feathers are drying, wash the ticking. When it is dry, apply a very stiff starch mixture to the inside with a sponge to keep the feathers from working through. When both feathers and ticking are thoroughly dry, refill the ticking in the same way that it was emptied.

**Cleaning Rugs and Carpets**

Dry rugs and carpets quickly and thoroughly. Then clean by sweeping or by using a vacuum cleaner. If necessary, shampoo them with a light-duty synthetic detergent or a commercial rug shampoo available at many drug and department stores. Leave large rugs on the floor or spread them out on a porch. For convenience, work with small rugs on a table near the sink or laundry tubs.

When using a commercial rug shampoo, follow the directions on the package. When using a household detergent, apply with a brush or sponge to a small part of the rug at a time. Scrub gently. Then wipe off the dirty lather and rinse this section immediately with clean water. Work over the surface of the rug in this way in overlapping sections so as not to leave streaks, and when rinsing for the last time brush the nap in one direction.

Dry the carpets as quickly as possible after shampooing by exposing them to circulating warm dry air from a fan or vacuum-cleaner attachment. Make sure they are thoroughly dry, for even though the surface seems dry, any moisture remaining at the base of the tufts will damage the rug.

Under ordinary circumstances there is danger of colors running and rugs shrinking when shampooed by home methods, but with articles badly damaged by floods, it is usually a matter of reconditioning them for any possible use. After such treatment some types of machine-made pile rugs may
need resizing to make them lie flat on the floor. Dissolve one-half pound of granulated glue in 1 gallon of boiling water. Lay the clean rug face down on papers in some part of the house where it can remain undisturbed, and tack it down at intervals, being careful to have it straight and true. Then with a whitewash brush or a whisk broom, brush the hot glue over the back of the rug, and let it dry thoroughly. **Caution:** Do not use so much glue that it will soak through to the right side of the rug.

The following USDA publications contain information that will be helpful when cleaning rugs and carpets: Home and Garden Bulletin 49, "Detergents for Home Laundering"; Home and Garden Bulletin 62, "Removing Stains From Fabrics: Home Methods"; Home and Garden Bulletin 68; "How To Prevent and Remove Mildew: Home Methods."

**THE FARM**

**Livestock and Feeds**

Water alone does not necessarily injure feed. The principal danger in feeding hay, grain, or forage that has been wet is caused by changes in the feed resulting from mold, putrefaction, and fermentation. If feed has only recently been wet and if it can be dried quickly, there is much less danger than when the dampness is of several days' or weeks' duration.

Wet hay should be promptly spread out to dry and should be turned and shaken frequently. It may be handled in much the same way as hay that is being made from freshly cut grass. Bales of hay, of course, should be opened and well spread out. Wet grain, likewise, should be spread and dried as quickly as possible. Small quantities for immediate use may be dried fairly quickly in artificially heated, well-ventilated buildings.

Feeds that are slightly musty or partly spoiled are more likely to injure horses than cattle. Hogs will tolerate still poorer feeds. But there is a distinct risk in using feed that is spoiled in any degree. Under no circumstances should spoiled material be fed if sound feed is available. Livestock may, however, tolerate small quantities of inferior feed, and such feed may be given to sustain life until supplies of safe feeds can be obtained. The principal danger is from digestive disturbances and so-called forage poisoning.

The presence of sand or dirt in feed is not, in itself, a noteworthy danger since animals normally consume small quantities of dirt. However, the presence of considerable quantities of such matter tends to make feed unpalatable. You can remove the dirt by sifting, shaking, or other means.

After silage has been saturated with water, some nutrient material is removed as the water drains away; but there is no spoilage due to the water itself, except for spoilage that may result from damaged covers.

If a silo becomes partially submerged, it is likely that foundation support is drastically weakened. Tower silos should be watched for new cracks or shifting position, and trench silos for collapse of the sidewalls.

**Handling Mows of Heating Hay**

Heating haymows may set fire to farm buildings. On the first indication that hay in barns is heating, maintain a close watch. The emission of water vapor, pungent and irritating odors, or the presence of hot, wet areas, or "flues," on the sur-
The face of the mow are warnings. Common salt may retard fermentation, but it cannot be relied on to prevent spontaneous ignition of hay.

The first thing to do is to make a check on the temperatures down in the mow before deciding upon what action to take. Drive a sharp-pointed pipe down into the hay, lower a thermometer inside the pipe, and leave it there for about 20 minutes. Make the reading quickly when the thermometer is removed.

If the temperature reaches 150° F., the hay is approaching the danger zone and observations should be made daily. At 160°, inspections should be made every 4 hours. At 175°, hot spots or fire pockets may be anticipated. Stop all ventilation and ask the fire department for standby service, or have an adequate supply of water on hand to quench a possible blaze. At 185°, remove hot hay. A fire department pumper with an ample supply of water should be ready to quench flames that will probably develop when air comes in contact with the hot hay. Hot and charred hay should be deposited at a safe distance from the buildings—flames may develop. If the temperature reaches 210°, the hay is almost certain to ignite.

CAUTION.—Workmen should not enter the mow alone. They should wear ropes around their waists because of the danger of falling into fire pockets. Long planks may be placed across the top of the hay for workmen to stand on while making observations or removing hay.

Guarding Livestock Health

In the wake of floodwaters there is some danger of infectious diseases, but unless serious outbreaks of infection have occurred recently, the danger is not sufficiently great to be alarming. However, whenever animals are assembled in concentration pastures for care during the emergency, it is advisable to be on the watch for any indication of infectious diseases and arrange for the handling and feeding of the animals by an experienced stockman, under the supervision of a veterinarian.

As a precaution, clean out all hog houses, barns, and chicken houses and spray them with a good disinfectant before they are again occupied by livestock. It is also advisable to spray animals with a pyrethrum insect repellent.

Consult your veterinarian about vaccinating livestock to prevent anthrax, or get a copy of Farmers' Bulletin 1736, "Anthrax." Hogs should be vaccinated against hog cholera and swine erysipelas. Also, it may be advisable to vaccinate chickens and turkeys against Newcastle disease. Information on this is contained in Leaflet 451, "Newcastle Disease in Poultry: How To Control It."

All contagious and infectious diseases should be reported promptly to the nearest veterinarian, the State veterinarian, or any livestock sanitary official.

Before restocking pastures that have been flooded, inspect them, especially along fence lines and corners. The short time taken will be well repaid through the prevention of cuts and other injuries to livestock from pieces of barbed wire, sharp metal, and trash.

Disposing of Animal Carcasses

As soon as floodwaters have subsided search all pastures for dead animals. When dead animals are found, prompt and sanitary disposal is of great importance to the living animals in the neighborhood. It is good practice to dispose of all animal carcasses in a sanitary manner, even though the danger of dis-
Sheep concentrated on driveway to avoid floodwater.

ease may at the time seem remote. Wherever it is convenient, send car-
casses of drowned animals to a render-
dering plant. Such carcasses may have some commercial value.

If rendering is not practicable, the dead animals should be disposed of on the premises. Immediately after finding a carcass, cover it with crude oil or kerosene to keep away dogs, buzzards, and vermin. Satisfactory burning of animal car-
casses has been found extremely difficult, and burial is preferable to burning, especially where a sufficient number of carcasses are present to justify importing power equipment. Choose a site where subsurface drainage will not reach the water supply of persons or live-
stock. Burial should be deep, so that predatory animals cannot reach the carcasses.

Cleaning Farm Equipment

Tractors and Internal-Combustion Engines

Care and skill are needed in re-
conditioning flood-damaged ma-
chinery. Before attempting to start any engine, make a thorough inspection to determine whether everything is in order. If the trac-
tor or engine has been completely submerged, do not even attempt to start it. The equipment should not be allowed to stand any longer than necessary. Delay may allow rusting and corrosion and the sticking of cylinders or other engine parts that might not occur if the machine were cleaned promptly.

Where the work is to be undertaken at home, carefully clean exposed gears, sprockets, and chains with kerosene or solvent, then with
Flood-damaged truck and tractors.

soap and hot water in order to remove all the mud and silt. Then coat with light oil. Valuable engines should be cleaned and reconditioned by or under the supervision of skilled mechanics.

Magnetos, generators, and starters should receive the treatment described on page 20.

Remove and clean carburetors, intake and exhaust manifold, magnetos, and spark plugs, and all parts of the engine that might entrap dirt, including air filters. Note how and where the parts came off, so they can be replaced exactly as they were.

Take apart as necessary and thoroughly clean all bearings, gears, and pistons in an engine with open crankcase.

Inspect the interior of enclosed crankcases or gear cases by removing plates or handhold covers. If there is water or grit in the case, which might have been admitted by leaking gaskets or packing glands, remove the oil, wash out the case with kerosene, and put in clean oil.

Wash the external or fin portion of the radiator carefully with a hose. Sediment or dirt caked in the cells will cause overheating of the engine.

Inspect the fan belt and the fan. Replace and repair them as necessary and see that the fan turns freely.

Remove, empty, and clean out the gasoline tank, as it is likely to contain water and grit after being immersed.

Take every precaution against explosion in handling gasoline tanks.
After all parts have been replaced examine the machine to see that everything appears in order, then turn over the engine by hand. If it turns freely, it probably is ready for starting. Be sure to have all parts clean and properly lubricated before starting the engine or machine.

Farm Implements

Before trying to operate any machine inspect it carefully and remove all dirt and debris.

Clean and oil all bearings, sprockets, chains, and gears not protected against the entrance of water and grit. Sometimes bearings equipped with grease cups or Alemlite or Zerk fittings can be sufficiently cleaned by forcing grease or oil through them until a considerable amount has oozed out from the sides of the bearings.

After cleaning the bearings and replacing the parts removed, carefully turn over the moving parts of the machine by hand to make sure that they work freely and that no dirt or debris remains to interfere with operation of the machine.

Examine all belts and repair or replace them as needed.

Unroll, clean, and thoroughly dry all canvas conveyors or covers on the machine or in storage to prevent mildewing.

Examine the knife bars of binders and mowers and free them of dirt.

Clean all of the dirt and rust from smooth parts such as moldboards of plows, disks of harrows, and shovels of cultivators, and coat them with rust-preventive compound, grease, or used crankcase oil.

Cleaning Electric Generators and Motors

When generators and motors have gone through a flood it is usually advisable to have them inspected and reconditioned by an experienced electrician. If such service is not available, a careful owner perhaps may obtain satisfactory results by proceeding as follows:

Remove and thoroughly wash all bearings that are not sealed; then replace them after oiling or greasing. Clean the oil wells supplying the bearings and fill them with fresh motor oil.

Clean centrifugal switches, slip rings, and commutators of grit and dirt particles and examine brushes to see whether they move freely in their holders.

Take out the armature, or rotating member, and clean it well with water from a hose under low pressure or with pails of water. High-pressure water or air may cause even fine grit to damage surfaces or insulation. Treat the stationary coils similarly. After washing with water, wash with kerosene, not gasoline. (Remember, there should be no smoking and no exposed flame near the place where kerosene is being handled.)

The motor coils, either rotor or stator, should be dried by heating to a temperature of about 150° F. for 10 to 15 hours. The windings should then be painted with a light insulating varnish. One coat should be applied and then baked for a period of 4 or 5 hours at a temperature of 200° to 250°. A second coating of the same material should then be applied and baked for 3 or 4 hours at the same temperature as the first coat to insure a good job.

Before assembling the motor or generator, check starting contacts for corrosion and lubricate lightly all moving parts. Replace oil wicks and renew oil in reservoirs. The bearings should be thoroughly reconditioned. If sealed-type ball bearings have leaked, allowing grit to enter, the bearings should be soaked in gasoline or oil and any loose grit blown out by compressed
air. With the sleeve-type bearing the dirt should be removed with kerosene and old wicks replaced with new material. If the capacitor overheats, remove it and bake it in mild heat for several hours. If it continues to overheat, get a new one.

Electrically driven machinery such as milking machines, milk coolers, brooders, water pumps, cream separators, feed grinders, hay choppers, and farm shop equipment call for a combination of this type of reconditioning plus the special attention needed for their motors.

How To Check Your Electric Wiring

(Wear rubber-soled shoes or boots and rubber gloves in checking electric circuits.)

1. Open the main switch in each building or at the yard pole if there is a yard-pole switch.
2. Remove all branch circuit fuses.
3. Disconnect all plug-in equipment and open the switches at each piece of permanently connected equipment.
4. Clean dirt and debris from the load-center panels and the switch, outlet, and junction boxes.
5. Allow the entire wiring system to dry out.
6. Have the whole system checked by a skilled electrician, preferably an electrical inspector with equipment for testing insulation resistance.
7. Make all changes recommended by the inspector.
8. Insert the fuse in a single branch circuit and close the main switch. If the fuse blows, there is still a fault in that circuit. If the fuse does not blow, look over the visible wires and each outlet in that circuit to see if there is any smoke or other sign of faults. If everything seems to be normal, remove the fuse.
9. Repeat this step with each of the other circuits.
10. After all circuits have been checked individually, insert all fuses in their proper places and plug in and operate an appliance known to be in good condition at each outlet.
11. Do not connect appliances and equipment that have been submerged, until after each one has been properly cleaned and checked. After proper cleaning and checking, each one should be cautiously operated individually to be sure that it is in good operating condition.

Additional information on wiring is contained in the publication "Expandable Wiring," available from the U.S. Department of Agriculture, Washington, D.C., 20250; ask for ARS-42-30.

First Aid to Flooded Land

Getting flooded land back to work may take considerable time and much labor. A farmer may be able to do it himself, but many renovation jobs call for community cooperation, technical help, and use of heavy equipment, either by farmers or by experienced contractors.

Clear Ditches and Drains

This is work a farmer can usually do for himself. The aim is to restore promptly the carrying capacity of the drains and get rid of excess moisture in the soil and fit fields for cultivation. Stagnant water is a health danger to the farm family and the neighborhood.

Clear outlet ditches and culverts of debris, drift, silt bars, and shoals to provide good outflow for field ditches and drains. Shovels or light mechanical equipment will do most of the work in the smaller ditches. Heavy equipment, such as draglines and large crawler tractors, may be needed in larger ditches.
Inspect head walls and outlets of tile drains and make sure that drainage channels are clear. Standing water over a tile line indicates location of obstructions. In reconditioning ditches and tile drains, start at the lower end of the system and work backward. If there is water standing, it may be necessary to dig an emergency channel through the obstructing material. Breaks through streambanks or dikes must be plugged to prevent normal high water from reflooding bottom lands. Gullies started by intense rains or floodwaters may be checked by temporary structures or by diversion ditches around the heads of the gullies. These check further cutting until soil-conservation measures for permanent control can be worked out.

**Neighbors Plan Together**

Communities find it necessary to cooperate when flood damage has been so severe that large scale re-planning of water-management is required. Such situations may call for realignment of streams or restoring them to their regular channels, streambank stabilization, diking, filling scour holes, dealing with heavy overlays of silt or sand, gully control, and similar undertakings. These big jobs are likely to affect the whole cropping system and layout of the farm and of neighboring farms. For such problems farmers are likely to want the technical assistance of the Soil Conservation Service, which is available through local soil conservation districts; also help from drainage and irrigation districts and other water-management enterprises.

Flooding frequently impairs the surface drainage pattern of cultivated fields through development of minor depressions from scour or the blocking of natural drainage depressions by sediment. Land leveling and smoothing equipment should be
used to redevelop good surface drainage.

Land with relatively light coverings of sand or silt can be brought back to production by normal tillage methods, though they may call for more than the usual supplies of manure and fertilizer. It may be necessary to grow grasses or forage crops for 1 year or longer before the usual tilled crops are planted again. Heavier overlays of silt or sand will call for more drastic changes in production, as recommended by technical specialists. Reseeding of meadows will provide an opportunity to replace old permanent pastures with more valuable mixtures of grasses and legumes that can be expected to produce more feed.

**INSECT AND RODENT CONTROL**

Control of insects in flooded zones is vital. Emphasis should be placed on prevention of insect breeding by restoring drainage and repeating treatment with mosquito larvicides as needed. (See discussion of drainage on p. 21 and discussion of larvicides on p. 25.) Clean up decaying animal and vegetable matter in which certain insects—for example, flies and cockroaches—breed. Destroy it as soon as possible. If the cleanup is delayed, it is all the more important to take quick, concerted action in killing the larvae to stop mosquito breeding.

House screens should be repaired to keep out flying insects. An oil solution of DDT or methoxychlor applied to screens will kill many of the insects alighting there, and will keep out gnats, midges, and other small flies that can enter between the meshes. These treatments will also give some protection against flies, mosquitoes, and many other insects that breed abundantly in standing water, stagnant pools and wet debris, and animal matter. Apply sprays or aerosols containing pyrethrum inside of houses, if necessary to supplement other insect-control measures.

Take care not to breathe the dust or mist of insecticides. Do not use oil sprays around open lights or fires or on vegetation. Avoid contaminating foods or livestock feed and water supplies with insecticides. Observe precautions listed on the label.

**Insects Affecting Man**

Concentration of people in camps may increase the trouble from annoying and disease-carrying insects such as lice, mosquitoes, and house flies. Bed bugs may also be present.

To control bed bugs, spray mattresses and bedsteads lightly with a 1-percent malathion spray. This spray will kill all insects present and will protect the beds from reinfestation for about a month. Half a cupful is enough to treat a double bed and mattress. You may have to treat walls and furniture.

Sprays containing 0.1 percent of lindane or 5 percent of DDT can also be used. However, some bed bugs are resistant to DDT.

To control body lice, apply 2 ounces of 5- or 10-percent DDT powder inside the clothing. Use this powder to control head lice also. Apply it thoroughly to the hair and rub it into the scalp. Leave the powder in the hair for about 10 days. If the powder is washed out after 1 or 2 days, make a second application in 8 or 10 days.

**Stop the Flies**

Control house flies by the following methods:

1. Apply a spray containing either Ciodrin, methoxychlor, lin-
dane, diazinon, naled, dimethoate, dichlorvos, or ronnel (Korlan). Apply it to the walls of barns and outbuildings, taking care not to contaminate feed troughs, water troughs, or milking equipment. Apply a scatter bait containing either diazinon, ronnel, naled, dichlorvos, trichlorfon, or malathion to places where the flies are congegating. A bait containing any one of these toxicants is highly effective, but must be repeated daily as long as extensive fly breeding occurs.

Wettable powders and emulsifiable concentrates containing various percentages of these toxicants are on the market, ready for dilution with water to obtain a spray of the desired strength. Follow the directions on the container for mixing insecticides.

2. Keep outdoor toilets free from flies by spraying both inside and outside with one of the sprays described above. Put a handful of borax into the pit every 4 or 5 days.

3. Make outdoor toilets flytight.

4. Protect food from flies and other insects.

5. Clean up flies’ breeding places.

6. Keep garbage containers covered tight. Remove garbage and manure frequently. Burn or bury garbage that cannot be used for feed or fertilizer.

7. When manure and garbage are to be used for fertilizer, spread them thinly on fields so that they will dry out rapidly and not support fly development.

Mosquitoes, Chiggers, Gnats, and Ticks

After a flood mosquitoes may be more abundant in usual mosquito territory and may also appear in areas not usually troubled by them. In some sections dengue and encephalitis may be a menace if mosquitoes are not controlled. Take the following steps:

1. Repair screens and spray them with a 5-percent DDT oil solution or emulsion. Use the spray also inside the house, especially in bedrooms. Spray under and behind furniture, in dark places, and other spots where mosquitoes may hide.

2. Use a household spray or an aerosol bomb containing DDT and pyrethrum for a quick kill of mosquitoes, as well as flies and other insects that may get into houses.

3. Keep small children indoors, especially early in the morning and in the evening. Persons who must go outside should cover all exposed parts of the body with a thin film of repellent, and also put repellent on the clothing. This treatment will protect against mosquitoes and chiggers and give at least partial protection from ticks. Treat bed nets with a repellent. Deet (diethyltoluamide) is an excellent repellent. Another good repellent is the 6-2-2 mixture used by the Armed Forces. If one of these is not available, use one of the components of mixture 6-2-2, dimethyl phthalate, Indalone, or ethyl hexanediol. Repellents may damage some types of rayon and other synthetics. They will not harm cotton, linen, wool, or nylon fabrics.

4. Empty the water from barrels, cans, and other vessels, not only because this will prevent mosquitoes from breeding but also because the water may be polluted by floodwaters.

5. Wherever possible, drain all ponds, pools, or standing water in which mosquitoes may develop. If drainage is impossible, treat the...
water with a larvicide—an oil solution or emulsion containing 1 percent of DDT, 0.5 percent of lindane, or 2 percent of malathion. Apply about 1 ounce to each 100 square feet of water surface (10 quarts per acre). Plain fuel oil may be used also, but 2 to 4 ounces will be needed for each 100 square feet (7 to 14 gallons per acre). Drain or treat flooded cellars and vaults.

Adult mosquitoes, flies, and gnats may be controlled on a community-wide basis with a fog or mist applied with special equipment or aircraft. Treatments may have to be repeated two or three times a week for several weeks, the number of treatments depending on the severity of the insect-control problem and how soon insects from surrounding territory enter the treated area. Some pest-control operators contract their services for fogging infested premises.

Space spraying alone may not suffice and it is expensive as well as limited in scope. Control of breeding spots should be given high priority.

**Insect Pests of Livestock**

Horn flies, when numerous, can be serious pests of cattle. Spraying with an insecticide is the best means of control.

Insecticides approved for use on beef cattle include Ciodrin, coumaphos, dioxathion, malathion, methoxychlor, ronnel (Korlan), Ruelene, and toxaphene.

Insecticides approved for use on dairy cattle include Ciodrin, dichlorvos, Lethane 384, synergized pyrethrum, and Thanite.

To control horn flies on beef cattle, use a spray containing 0.5 percent of ronnel (Korlan), toxaphene, methoxychlor, Ruelene, or malathion; 0.125 percent of coumaphos; or 0.15 percent of dioxathion.

To control horn flies on dairy cattle, use a synergized-pyrethrum spray or a spray containing Ciodrin, dichlorvos, Lethane 384, or Thanite.

Dusting also provides good protection for both beef and dairy animals. Apply 1 tablespoonful of a 50-percent methoxychlor powder to the back of each animal. Three tablespoonfuls of 5-percent malathion dust or 4 tablespoonfuls of 4-percent malathion dust may be used in the same way, but do not apply during, or less than 5 hours before, milking.

For beef animals, a 5-percent toxaphene dust may be used.

Backrubbers provide a means for cattle to free themselves of flies. For dairy cattle, use a backrubber treated with an oil solution containing 1 percent of Ciodrin.
For beef cattle, use an oil solution containing 5 percent of DDT, toxaphene, or methoxychlor; or 2 percent of malathion; or 1.5 percent of dioxathion; or 1 percent of rotenol; or 1 percent of Ciodrin. One gallon of oil solution will treat 15 to 20 feet of burlap-wrapped cable.

Black flies, stable flies, mosquitoes, and horse or deer flies are also injurious to livestock. Both beef and dairy cattle can be protected from these pests by applying synergized pyrethrum, Lethane 384, Thanite, dichlorvos, or Ciodrin sprays. Do not apply synergized-pyrethrum sprays in conjunction with coumaphos.

When using insecticides, follow label instructions carefully.

Remove livestock from low-lying pastures along rivers and put them on higher, open pastures.

Further information on control of insects affecting man, and insect pests of livestock, may be obtained from the following publications of the U.S. Department of Agriculture:

Leaflet 388, "Horn Flies on Cattle: How To Control Them."
Leaflet 390, "The House Fly: How To Control It."
Leaflet 430, "Cockroaches: How To Control Them."
Leaflet 453, "How To Control Bed Bugs."
Home and Garden Bulletin 84, "Controlling Mosquitoes in Your Home and on Your Premises."
E-685, "Control of Human Lice."
ARS-33-45, "Suggestions for Fly Control in Poultry Establishments."

**Rodent Control**

Rats cause destruction in flooded areas and are carriers for at least six diseases. A control program for flooded and flood-fringe areas includes killing rates, removing rat harborages, eliminating their food supplies, and ratproofing buildings. Poisons for rats and other rodents include such chemicals as red squill, ANTU, and zinc phosphide. They are used in baits.

**Care must be exercised and directions followed closely to avoid killing livestock, pets, and even people.**

Government technicians have even more deadly rodenticides, some of which are made into drinking baits. These poisons are restricted to use by qualified operators. United States Public Health Service and State and county health services also make war on rodents.

Anticoagulant rodenticides, including warfarin, pival, fumarin, and dipacin, are the safest rat poisons to use in situations where rat poisons are accessible to children or pets. Follow directions on the package. Death of the rodents does not take place until after at least 4 days of successive feeding, and maximum kill will continue for 2 weeks or more after bait placement.


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**CAUTION**

If pesticides are handled or applied improperly, or if unused parts are disposed of improperly, they may be injurious to humans, domestic animals, desirable plants, and pollinating insects, fish, or other wildlife, and may contaminate water supplies. Use pesticides only when needed and handle them with care. Follow the directions and heed all precautions on the container label.
RELIEF AND REHABILITATION SERVICES

Representatives of county, State, and Federal agencies are on hand to extend aid in flood disasters, both in emergency relief and rehabilitation. American Red Cross maintains a national and four area offices and is represented by a chapter in every county. It gives emergency assistance to meet the immediate needs of flood victims for food, clothing, shelter, and medical and nursing care. It also assists in rehabilitation on an individual family need basis. Red Cross services are given outright; no loans are made.

Health measures are described on pages 6 and 7. Public Health agencies give assistance in clean up operations and sanitation. Rehabilitation services of the United States Department of Agriculture can be discussed with local representatives of the bureaus operating within the flood area. Departmental aid includes several types of loans to help in rehabilitation.

Services of the Department’s disaster loan programs are of great assistance to farmers who have suffered property or production losses in flood areas. Ordinarily, under the regular authorizations, departmental expenditures for relief or rehabilitation are made only for the regular programs and practices, such as soil conservation. After the Kansas-Missouri flood in 1951, under special authorization from Congress, the Department bought feed to tide over livestock, assisted farmers in seeding and rehabilitating their land, gave some financial aid in carrying out the soil conservation program, and lent facilities, engineering services, and machinery to help the farmer clear drains and repair terraces and outlets. Production and rehabilitation loans at a low rate of interest were made in sufficient amount to keep farmers in business.

Red Cross volunteer serving food to persons driven from their homes by flood. (Photo from the American Red Cross.)

PRECAUTIONS AGAINST FLOOD

Some things may be done to anticipate floods, or new rises of water. Embankments and levees can be strengthened, watergates closed. Threatened spots may be reinforced with brush and posts or rock, ditches and drains opened, wells more or less protected by sandbagging, culverts cleared and anchored firmly, buildings braced, fire hazards removed.

If water has not already entered the buildings, electric switches may be thrown, but do not take chances in the presence of water. Cut off gas. Protect fuel tanks. Put out
heating and cooking fires before leaving buildings. Flammable material should be removed. Boats, if any, can be securely fastened where they will not be swamped or smashed. If possible, notify local authorities of your removal plans.

Move persons, household goods, livestock, machinery, and feed supplies to higher ground or upper stories of substantial buildings.

It is well to keep on the lookout against new flood crests and not to hurry back to the premises. Where safety precautions have been taken, however, it may be possible to begin cleaning out mud, silt, and debris as the waters recede and before the mud dries and cakes on floors and walls. As the waters go down, it is sometimes possible to float light buildings back into place or to new locations.

**CHECKLIST OF REHABILITATION STEPS**

1. See that everybody is safe and out of danger of new flood crests, fire, and falling buildings.
2. Give full cooperation to local authorities, rescue squads, and local Red Cross chapter.
3. Arrange for shelter, food, clothing, transportation, medical supplies, and hospitalization (if available) for sick and injured.
5. Test plumbing fixtures by flushing with buckets of water. Have sanitary disposal systems inspected by health authorities.
6. Have water supply tested. Boil or chlorinate emergency supplies of drinking water. Use no food that has been contaminated. Destroy fresh foods that have come into contact with floodwaters, and discard or use other foods according to recommendations on page 13. Pump all private water supplies until water is clear; correct all construction defects; clean and disinfect all walls, casings, and pumping devices.
7. Start vigorous cleanup of premises as soon as floodwater recedes; remove doors, clean and dry house before trying to live in it. In entering buildings, use flashlights but no matches; do not turn on electric lights, furnace, or fixtures until tested by electrician; avoid nails, splinters, holes in floor or walls, and fall of wet plaster.
8. Drain or pump water from basements. Get stoves or heating plant to work as soon as possible. Heat hastens drying. Remove sediment from heaters, flues, and machines before using them.
9. Take all furniture and rugs outdoors and spread to air.
10. Start cleaning all bedding and clothing as soon as possible, using approved methods recommended on pages 13 to 15 for safety and to minimize damage.
11. Delay permanent repairs until buildings are thoroughly dried.
12. Use insecticides against mosquitoes, flies, and vermin. Kill rodents. Prevent livestock diseases by moving stock to higher pastures.
13. Spread wet feeds to dry. Be cautious in feeding these to livestock. Watch piled hay for spoilage, heating, and fire hazard.
15. Submerged farm machinery should be taken apart and cleaned before it rusts. Motors or engines must not be started until cleaned out and dried.
16. Clear and open drains, ditches, channels, small streams, and tile-drain outlets. Drain standing floodwater, if possible. Plug breaks in dikes; use temporary structures to stop breaks, against recurrence of high water. Clear barbed wire and other debris from lots and fields.
17. Avoid overexertion and strain in lifting and moving heavy objects or loads.
18. Whenever kerosene is used, keep heat, sparks, and open flame at a distance to avoid fires.