STORING CURED TOBACCO TO MAINTAIN QUALITY

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Storing excess tobacco from one season until it can be sold the next season requires a continuation of the management used to produce, harvest and cure the tobacco. Continuous management is necessary to maintain low moisture levels in the tobacco and to prevent tobacco moths and cigarette beetles from infesting the stored tobacco.

INTRODUCTION

Good management is required on the part of growers to maintain the quality and value of tobacco which is stored from one season to another. In general, tobacco should be stored in a clean, dry, insect free facility, such as a packhouse or bulk curing barn. The costs of production, harvesting, and curing of carryover tobacco have already been invested and the carryover tobacco is additional profit for the producer if quality is maintained by proper storage. Care should be taken to insure that the tobacco is sufficiently dry when placed in storage. Storage facilities should be maintained insect free and the tobacco should be checked periodically to insure proper storage and the absence of insect or moisture damage. If damaged tobacco is located, steps should be taken to minimize the amount of tobacco damaged.

STORAGE

If space is available tobacco may be left in the curing racks or boxes for storage. Following the curing process the curing barn is probably the most sanitary facility on the farm having eliminated the threat of insects existing in the barn. However, once the barn is opened and tobacco moved in or out new insect contamination may occur. The same may happen over time with the natural movement of insects. Tobacco should be stored in bulk curing barns in the boxes or racks used for curing if at all possible. Avoid storing tobacco in compressed bales. Damage has resulted from areas with excessive moisture in the bales and from the combining of tobacco from multiple stalk positions.

Baled tobacco is hard to bring back into order or case. Tobacco which cannot be left in the barns should be stored in sheets and the tobacco should be dry throughout the sheet when placed in storage. Care should be taken to provide good ventilation under and around the tobacco. Stack sheets no more than 2 sheets high on wooden pallets or rails, especially if the storage area floor is concrete, asphalt or near ground level. A vapor barrier of polyethylene or roofing paper placed on the floor will reduce the infiltration of moisture. Leave space to move around the stacks when making periodic checks every 2-4 weeks.

If bulk curing barns are used the fans may be run occasionally on days when the weather would encourage drying of the tobacco to insure the tobacco remains dry. Tobacco may be redried at temperatures not to exceed 100° F to avoid color changes and reductions in quality. Heat treatment of loosely packed DRY tobacco at 140° F for one hour may be used to reduce the number of insects initially. No residual effect of this treatment should be expected. Tobacco may be reinfested by insects at a later date and may require re-treatment.

INSECTS

Tobacco moths and the cigarette beetle, commonly attack tobacco stored on the farm.
Of these the tobacco moth is most serious. The larvae, which cause all of the damage, are pinkish to yellow to off-white caterpillars about 1/2 inch long. They burrow into and form ragged holes in the cured leaves. Entire leaves may be consumed except for the midrib and large veins. The larvae also deposit webbing and fecal pellets on the infested tobacco. The adult tobacco moth is a small gray moth about 3/8 inch long with a 5/8 inch wingspread.

Cigarette beetle adults are light to dark-brown, hump-backed insects about 1/8 inch long. Adults leave tiny holes as they emerge from pupae cases within the tobacco. The hairy C-shaped larvae, which cause most of the damage, are whitish with a brown head and are about 1/5 inch long. They leave behind powdery waste which can give tobacco an unpleasant flavor.

**CONTROL OF INSECTS IN STORED TOBACCO**

Control of established infestations is difficult, so prevention is very important. The most important step in prevention is sanitation. Before tobacco is placed in storage, a clean storage area should be prepared. Clean out and burn all tobacco and debris from the storage area. Plant trash in the storage area might harbor insects which can move to the tobacco.

**Tobacco Moths:** The tobacco and the storage area should also be treated with Bacillus thuringiensis to help prevent tobacco moth infestation. Apply a fine spray to loose tobacco AS IT IS BEING SHEETED. One suggestion might be apply B.t. as a fine mist as the tobacco is sent through a conditioning cylinder (a tumbler).

Rates for treatment with B.t. are as follows:

**Tobacco:** 2.5 teaspoons Dipel 2X, Dipel DF, or Biobit HP per quart of water per 100 pounds of tobacco. Use 1 1/2 to 5 tablespoons of Match per quart of water per 100 pounds of tobacco.

**Storage area only:** 6 teaspoons Dipel 2X, Dipel DF, or Biobit HP per 2 1/2 gallons of water. Use 1/2 gallon per 1,000 square feet of surface area.

Stored tobacco should be checked every two to four weeks during the fall and winter for signs of insects and new damage. If tobacco moths are found, tobacco should be treated with B.t. as described above. Treating the outside of piles and/or the sheets will probably not control an established infestation. Piles must be taken apart and the tobacco treated as loose leaves before resheeting. Sheets may also be treated.

**Cigarette Beetles:** Malathion is labeled for treatment of storage facilities as a residual spray for the control of cigarette beetles. There are no labeled cigarette beetle preventive insecticides for direct application to tobacco.

Treat the storage area only as follows: Storage area only: Malathion 5 lb/gal EC - 1 pt per 2.5 gallons of water. Clean the area thoroughly; spray walls, floors, and ceilings to the point of run-off, preferably at least two weeks before storing tobacco.

If cigarette beetles are found in stored tobacco, tobacco may be fumigated. Current regulations make it very difficult for farmers to legally carry out fumigation on their own. Therefore, fumigation should be done by a professional. Some fumigants give an off flavor to the tobacco and are not recommended.

**ALL FUMIGANTS ARE VERY HAZARDOUS AND MUST BE HANDLED CAREFULLY.**
Remember that fumigation controls only insects which are present; it is not a preventive treatment. Most fumigants can cause damage to metals, especially copper wiring in motors, when in contact at high concentrations. DO NOT treat stored tobacco with pesticides not specifically labeled for this purpose. Always READ and FOLLOW label instructions.

The use of heat in the curing barn to kill infesting insects, as directed above, is the safest and simplest method to eliminate insects in cured tobacco. To simplify this process tobacco which will be stored through the winter should be left in the curing barn in the curing racks or boxes. Regular inspection of the tobacco and occasional use of the barn fan and/or furnace will maintain low moisture content and reduce the potential for insect infestation. For further information contact your local County Extension office.

SUMMARY

Store carryover tobacco in curing barns in boxes or racks used for curing. Barns are the most sanitary facilities on the farm at the end of the curing cycle. Barn fans and heat can be used to manage moisture, insects and mold. Make regular inspections of stored tobacco with special attention following major weather changes.

Avoid storing tobacco in compressed bales. Any tobacco not stored in curing barns and containers should be stored as dry as possible in loosely filled NEW sheets which are not stacked over 2 sheets high. Cover sheeted tobacco with NEW sheets. Sanitation of the tobacco and the surroundings is critical.

Avoid any possible contamination of carryover tobacco with insects (cigarette beetles and tobacco moths) from old tobacco sheets, OLD stored tobacco, tobacco trash or other sources of food for insects. Storage facilities other than curing barns should be cleaned thoroughly to remove tobacco trash, dust and insects from all cracks and crevices. Provide a moisture barrier under sheeted tobacco. Avoid storing sheets on concrete or asphalt.

Store only tobacco which has been cured in a barn with an indirect heat source as all tobacco will have to be certified as low nitrosamines. Only store tobacco in retrofitted barns to avoid exposure to exhaust gases when drying tobacco.

Tobacco warehouses must be bonded and insured if they store tobacco belonging to more than one other person. Consider the effort required to manage stored tobacco not stored on the farm. Most warehouses have cement or asphalt floors requiring tobacco to be stored on pallets to avoid absorption of moisture.