



**Seeding,
Weeding
and mulch
more**

For the avid gardener

Gardeners can get a head start on next spring by doing some work this December. Penn State Extension horticulturalist, Robert Nuss offers the following advice. The garden site itself needs some attention to prevent or reduce any possible damage to the soil.

The heavy rain has increased soil erosion recently, and erosion can take a great deal of a gardener's valuable growing medium.

Wind erosion is another possibility later in the season when the soil is frozen. As the soil's top layer dries out, the binding quality of its water disappears. The topsoil layer can disappear in a winter breeze.

But a cover crop would be an effective way to prevent erosion, Nuss says. Since it's too late to plant a crop, the next best approach would be the application of a coarse organic matter. Use a thin layer of straw, oak leaves, weathered sawdust, wood chips or shredded bark on the surface. Next spring, the organic matter can be incorporated into the soil to improve texture and overall quality.

Gardeners with access to manure can also use this medium on the surface over winter. Some nutrient loss will result from weathering, but the organic matter will still help the soil in spring.

Now's a good time to make one last check in the tool shed to make certain all the tools and garden equipment have been cleaned and properly stored for the winter. A few minutes now will make next spring's work easier.

Sprayers need special attention because liquid sprays may clog and corrode metal parts. Dismantle a sprayer and rinse it well with hot, clean water or an ammonia solution. Hang it upside down until it is completely dry. Put the parts together loosely and store the complete unit in a dry place. Make certain there is no water in the spray hose that might freeze in cold weather.

Hand tools tend to retain some soil after use. This soil can absorb moisture from the air and cause the metal surface below to rust over the winter months. Clean all soil from these items before put-

ting them away. In fact, it is a good idea to keep them clean all during the gardening season. Once the metal surfaces are clean and dry, sharpen any cutting edges so they are ready for use next year. Before storage, rub a coating of wax on the metal to prevent rusting.

Garden hoses may already be disconnected and coiled for storage, so make certain no water is trapped inside the hoses. Freezing water can expand and rupture a hose in storage.

You should also service your power equipment before storage. Wash items thoroughly to remove oil, grease, soil and clippings. Run the engine a few minutes to heat the parts for faster drying. Drain the fuel tank by removing the fuel line from the carburetor connection. Once the tank has emptied, start the engine and run it until the lines are clear of fuel.

The cylinder should also be lubricated by removing the spark plug and placing a teaspoon of clean oil into the plug opening. Cover the hole and pull the starter cord slowly several times. If it's an electric starter, turn the engine over a few times. Replace the spark plug tightly to prevent dirt from entering the engine.

Winter is a good time to clean the air filter, change the oil and lubricate all the moving parts in power equipment. The bearings should be greased on small garden tractors. Any unpainted metal parts should be lightly coated with a film of oil to prevent rust.

Power equipment should also be stored in a dry area, Nuss adds. "I have seen small tractors and lawnmowers made useless when mice built winter nests in the small recesses of the engine and cooling systems," he says. "This equipment may not start in the spring. If it does, it may overheat and burn out because of improper cooling."

Fish loses texture, quality in freezer

ITHACA, NY. — Wrapping a piece of fish and freezing it solid is no guarantee that it will smell and taste fresh when you thaw it and cook it, a Cornell University food scientist says.

In fact, the taste and quality of most frozen fish will deteriorate in the supermarket freezer before you buy them, says Joe M. Regenstein, an associate professor of food science in the New York State College of Agriculture and Life Sciences at Cornell.

"People treat frozen fish as any other frozen product," he says. "That's wrong, because frozen fish is such a perishable product."

Regenstein and his colleague, Glenna J. Ryan, a Cornell Cooperative Extension associate and nutritionist, have been working with frozen fish packers on ways to use minced fish, a by-product from the industry's filleting process. From their research on the fillet by-products, Regenstein and Ryan have become more aware that the quality of regular frozen fish—whether it be in fillet or fish stick form—deteriorates in freezers.

"Most people think that freezing halts deterioration," Regenstein says. "However, in fish, the process of deteriorating quality during frozen storage goes on at a measurable rate."

Freezers in warehouses, trucks, supermarkets, and homes keep the fish from spoiling, but they are not cold enough to preserve the texture and taste of fish.

"Fish don't spoil from the health aspect in properly working freezers, but their quality deteriorates," Regenstein says.

Three major causes of deteriorated flavor and texture in frozen fish and other frozen products are ice crystal formation, freezer burn, and rancidity, he explains. Ice crystals, which form during freezing, disturb the cell structure in the frozen food,

resulting in increased moisture loss during thawing.

Freezer burn is a loss of moisture during freezing, primarily through evaporation from improperly wrapped products. Rancidity is a chemical reaction that results in unpleasant odors and tastes.

Many types of popular frozen commercial fish undergo yet another type of change as the result of an enzymatic reaction, Regenstein says. That enzymatic reaction, which occurs most commonly cod, haddock, hake, whiting, cusk, and pollack, changes the texture of the fish from moist and smooth to dry and fibrous. Such reactions occur at temperatures above minus 22°F.

Since most freezers operate at temperatures ranging from zero to minus 10 degrees, frozen fish must be treated as a perishable item, Regenstein says. Fish simply will not keep in freezers for extended periods, as will red meats, poultry, or vegetables.

Unfortunately, Regenstein says, much of the frozen fish available on the market has already been frozen for some time. Frozen fish is sometimes held in these "less than ideal" freezer conditions for more than a year before being released to the market. The fish-packing industry does this to adjust the supply and the market

prices.

"We have a very fine food distribution system in America," Regenstein explains. "However, it was designed for other products, such as red meat or vegetables. Unfortunately, frozen fish falls in the cracks."

Some types of fish last longer than others in frozen storage. For example, fatty fish, such as herring, mackerel, salmon, and trout should be stored in freezers for only about three months. Leaner fish, such as cod, haddock, flounder, and red snapper, can be stored for as long as six months.

The flavor and texture of all types of fish would be better preserved if the fish were stored at colder temperatures, below minus 22°F.

"So the answer for now is beating the clock," Regenstein advises. "The sooner you use frozen fish, the better the quality."

Regenstein hopes that the food storage and distribution network in the United States catches on to these facts and provides colder storage for frozen fish.

In the meantime, Regenstein advises that consumers use their frozen fish quickly.

"The bottom line is that people should be able to get a better product by not leaving it around in the freezer for too long," he says.



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