nter storms come in several forms

By DIETER KRIEG

NOTE: This is the 17th article in a continuing

ctors which determine our weather pattern are immensely powerful. Winter storms are no exceptions.

Cold seasons are brought about as a result of the Earth no longer tilting toward the sun at the same pronounced angle as was true during the warm months. With the rays of the sun no longer hitting the northern hemisphere as directly as before, Earth's weather in this region begins to cool until the degree of tilt reverses itself and becomes more pronounced again. At the same time, days become longer and nights shorter.

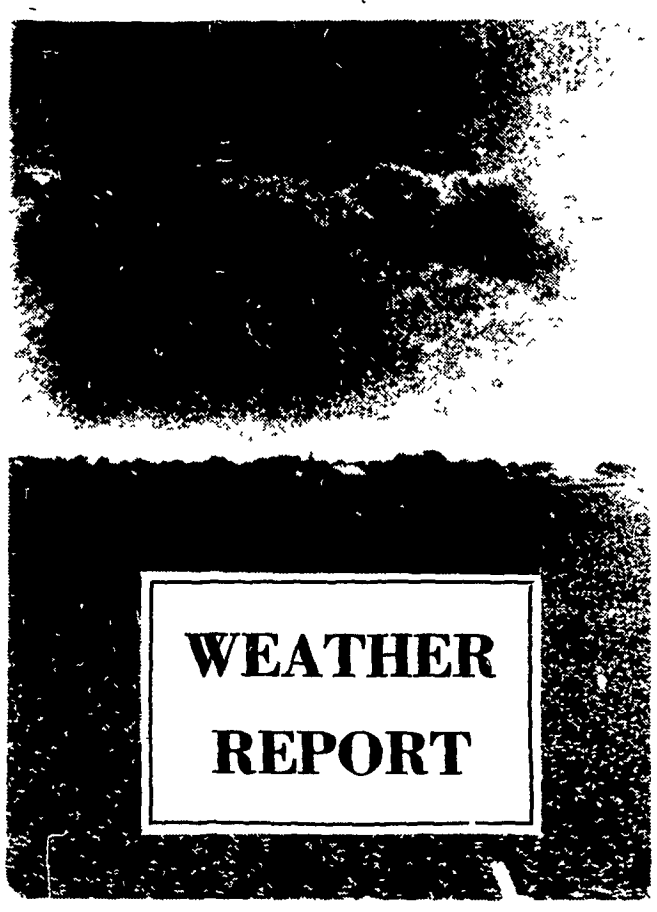
Simple enough to explain mechanically, this regular seasonal occurrence is a key to why life is the way it is in non-tropical regions. Sure enough, our entire agricultural system hinges on the perennial spinning and tilting of our planet. It happens from year to year as regular as clock work.

There are times during the lives of every farmer when he wishes he could do without winter, I'm sure. Like when water pipes have frozen up; or a tractor and load are hopelessly stuck in snow and ice; or when the bulk tank is overflowing due to the milk truck not being able to get in and cattle are bawling for lack of feed and water; or the manure spreader froze up tight.

Changing the degree of tilt of the Earth would be impossible to do, however.

Winter's storms are spawned by the same forces which give birth to storms during the warmer seasons. Essentially, they're the result of constant interaction between warm and cold air masses. The variations in temperature and pressure make the atmosphere "boil" regardless of what time of year it is. Tremendous amounts of energy are released or consumed, the results of which we see in wind, hail, snow, rain, sleet, and bitter cold temperatures.

The National Oceanic and Atmospheric Administration - National Weather Service provides the following details on a variety of storm forms. They also point out to farmers that autopsies of cattle killed by winter storms have shown the cause of death to be dehydration, not cold or suffocation. Cattle cannot lick enough snow to satisfy their thirst, NOAA scientists emphasize, and stockmen are therefore advised to be extra careful in providing their animals with adequate supplies of feed and water during prolonged exposure to winter storm conditions. Blizzards take a terrible toll in livestock, NOAA research indicates. "For both humane and economic reasons, cattlemen should take necessary precautions in advance of severe winter storms.



NOAA scientists describe winter storms in these words, which are taken directly from an agency brochure.

FREEZING RAIN OR FREEZING DRIZZLE

Freezing rain or freezing drizzle is rain or drizzle occurring when surface temperatures are below freezing (32 degrees Fahrenheit). The moisture falls in liquid form but freezes upon impact, resulting in a coating of ice glaze on all exposed objects. The occurrence of freezing rain or drizzle is often called an ice storm when a substantial glaze layer accumulates. Ice forming on exposed objects generally ranges from a thin glaze to coatings about an inch thick; but much thicker deposits have been observed. For example, ice deposits to eight inches in diameter were reported on wires in northern Idaho in January 1961, and loadings of 11 pounds per foot of telephone were found in Michigan in February 1922. It has been estimated that an evergreen tree 50 feet high with an average width of 20 feet may be coated with as much as five tons of ice during a severe ice storm. A heavy accumulation of ice, especially when accompanied by high winds, devastates trees and transmission lines. Sidewalks, streets, and highways become extremely hazardous to pedestrians and motorists—over 85 per cent of ice-storm deaths are traffic related. Freezing rain and drizzle

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