

## The sun effects broiler house comfort

NEWARK, Dela. — The sun can provide up to 428 BTU's of energy per hour per square foot. That's equal to the heat generated by 10 four-pound broiler chickens

During the hottest part of a sunny summer day, the solar energy striking a poultry house is potentially greater than what's produced by the birds inside. This solar energy adds to the interior temperature and greatly increases the chance for mortality.

The chicken's respiratory system doesn't allow it to evaporate enough moisture to stay cool in extreme heat. With increased air temperatures, body heat loss through its feathers decreases. The body temperature of a four to eight week old broiler chick is about 117 degrees. If the air temperature inside the house goes from 70 to 95 degrees, his potential to dissipate this heat is cut in half.

The air outside may be 90 degrees. Inside, the heat given off by a flock plus the heat flow from solar energy hitting the building may boost the temperature to 95 degrees — especially if there isn't enough ventilation. If this happens, you've got problems.

How you orient a poultry house in relation to the sun can minimize the amount of sunlight striking the structure and help prevent such dangerous summer heat levels, says University of Delaware agricultural engineer Norman E. Collins.

If a house is oriented with its long axis east-west, most of the sun's rays will hit the south-facing

section of the roof. If it's oriented north-south, as the sun rises and sets its rays will hit much more of the structure and the building materials will absorb much more energy.

With an east-west orientation, the sun's impact in the summer on the side walls of the house can be minimized by building a roof with an overhang. The overhang shades the wall, allowing its temperature to remain relatively low or close to air temperature.

During the winter, the same orientation permits a fair amount of desirable solar energy to strike the building's long south wall. This is because the sun's angle above the horizon is much smaller than in the summertime. As a result, the overhang provides less shade and thus permits warming of the wall.

The actual amount of energy absorbed by a broiler house wall depends on the reflectivity of the materials used, says Collins. A highly reflective surface absorbs much less than a dull one. But no matter how reflective they are, all materials absorb a certain amount of heat as their surface warms up.

As surface temperatures continue to rise, some of this absorbed energy returns to the atmosphere. Some goes inside the building. For this reason, insulation used to save fuel in the winter also helps reduce the heat gain inside a poultry house in the summer. "This is especially true of the peak gain experienced in mid-afternoon on a bright, hot day," says the engineer. "The more insulation you have, the later that peak will occur and the lower

it will be." This reduces the danger of heat stress on the flock inside.

From the standpoint of solar energy, there's another argument in favor of placing a broiler house along an east-west axis. With the rapid rise in fuel costs, there's growing interest in using solar energy as a heat source for winter

brooding systems.

Though the idea is still in the developmental stages, Collins says it does have future potential. He's presently working on a federally funded project at the Delaware Agricultural Experiment Station aimed at developing a low-cost solar collector which can be used

to provide heat in the winter during the early stages of broiler growout.

Once the concept becomes economically feasible, a poultry house positioned along an east-west axis will be ideally located for conversion to a solar energy brooding system.

## 1982 Simmental Sire Summary

BOZEMAN, Mt — The American Simmental Association announces the publication and release of its 1982 National Simmental Sire Summary. ASA Executive Vice President, Earl B. Peterson commented, "the new edition contains a wealth of information for the performance-minded cattleman...whether he be a commercial or registered breeder."

"The format for the 1982 Sire Summary is consistent with the changes initiated a year ago", Peterson explained. "A few refinements have been made, but member response indicated that the current format is popular and functional."

A key factor of the ASA performance program is free calculations of records to members or non-members alike when either the sire or dam is a registered Simmental.

"One of the easiest ways for a commercial producer to get these free performance calculations is to use a registered Simmental bull and submit the records to ASA. This is a service available whether the bull is a half blood or

purebred," Peterson continued.

In 1971, the American Simmental Association published the first breed-wide Sire Summary in the beef industry. By way of comparison, the initial Summary listed 13 purebred sires and 6,778 animals from 301 management units. The 1982 issue evaluates 3,458 purebred sires and 458,684 animals from 44,003 management groups.

Progeny records are gathered through the comprehensive performance record-keeping system available to all ASA members. Breed wide comparisons of sires are tabulated on 14 traits. Breeders can thus evaluate the potential usefulness of a great number of purebred bulls in their own herds.


Dick Tetherow, trustee from Valentine, Nebraska, who is chairman of the Performance Committee, offered these comments: "I am thankful for the

foresight of previous Performance Committees. They established the mechanics for recording performance data on any registered herd...and thus, we have a solid base from which to move ahead."

"We can make accurate predictions about the potential performance of progeny, using the estimated breeding value concept as illustrated in the 1982 Sire Summary", Tetherow added.

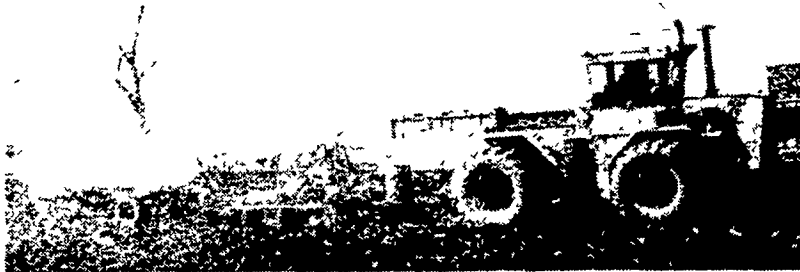
The Sire Summary includes a listing of 75 Genetic Trait Leaders; identifies 188 reference sires; and carries a trait correlation table as well as other material.

The Sire Summary is mailed free of charge to all active ASA members. Non-members may obtain copies by mailing a \$5 check for each copy requested to the American Simmental Association, One Simmental Way, Bozeman, MT 59715.



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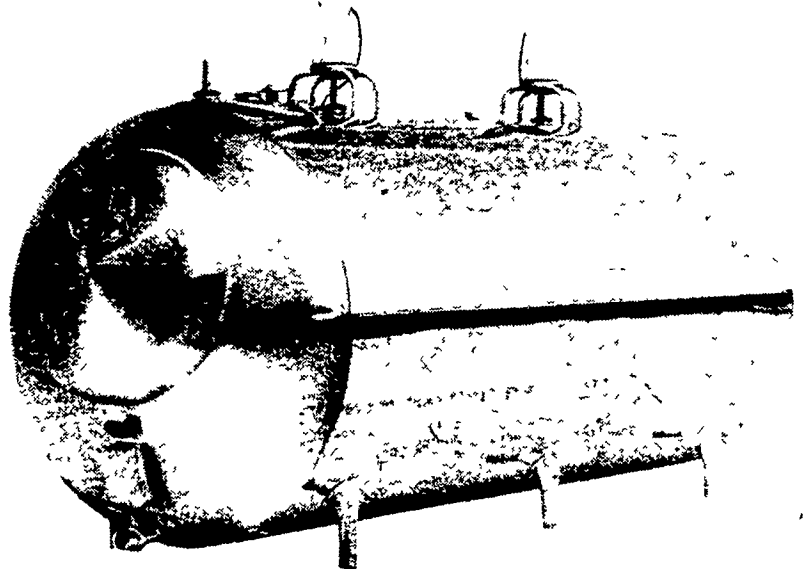
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