

Geotherm operation

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through the inside of the barn via a plastic fan tube

On the outside corner, Horst placed two inlet pipes each connected to a fan. The first pipe travels 75 feet to the first fan, and the second pipe travels 100 feet to the second fan. The pipe is plastic, corrugated drain pipe and costs about \$4.75 per foot.

The pipes jut up from the ground and connect directly to the fans. A Martin air system harvests the air and blows it through the plastic fan tube. A baffle device on the air system controls the air velocity.

The temperature of the harvested air, Horst said, depends on two variables - the length of the pipe and the velocity of the air. He said a minimal length of 150 feet for each pipe would be optimum. At this length, less variation

between the outside to inside air would be achieved, and the air would be more stable.

The baffle, which is part of the Martin air system, moves in an upward and downward direction and controls the velocity. When almost completely closed, the air temperature is about 50 degrees, Horst said.

Horst said his veal calves have adjusted well to the geotherm system. Veal calves don't like fluctuations in temperature, he said, and are best raised under a 75 to 80 percent humidity range. Horst gets these conditions with his geotherm system.

The veal calves are raised in an all in, all out system. They are fed a milk replacer made up of skim milk, whey, fat and vitamins mixed by Horst himself. The replacer, which is fed for 15 weeks, is mixed with hot water heated by

the solar panel.

Horst said his geotherm system is operating at virtually no extra cost, and he is saving money by cutting costs on electric and combustible fuel. He is pleased with his system and says the only problem deals with a high water table.

Because of this, he sometimes has to drain water from the pipes. He plans to build a concrete pad around his outlet pipes to control water drainage.

If planning on building a geotherm system, Horst suggests the following considerations: the size of the fan, the temperature one plans to maintain, the importance of the cooling system, and the height of the water table.

For fan size, Horst said that the fan and the pipe should be of the same diameter. This will allow for more surface heat exchange and will keep the negative pressure less than that of the fan. A main-



Plastic fan tubes, engineered with holes for even distribution, are placed above the calf stalls and allow the flow of the warm geotherm air.

tained temperature, Horst said, can be obtained through the pipe size. Cooler air is possible through slow air movement.

By capturing heat from the

ground, Horst hopes to maintain the optimal 75 degree-temperature required for veal calf operations. A temperature of 68 degrees would be ideal, he said.



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