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Celebrating invention, inspiring youth

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SmartGuard Device – Real-Time Health Analysis for Farmers

The Challenge: While employed as a farrowing manager on a sow farm, Matthew discovered that 6,000 piglets died per year when their mothers accidently crushed them. There was no effective solution for preventing this loss. Newborn piglets naturally want to snuggle up to their mother for warmth and feeding. Studies indicate that anywhere from 11-24% of piglets die this way (Barnett et. al., 2001), usually within three days after birth.

The Solution: Matthew founded SwineTech to market the patented SmartGuard device that is part of a new approach for reducing the number of piglet deaths during the first four days after birth when they are most vulnerable; Abraham oversees daily operations as its chief operating officer. The new approach to raising pigs, enabled by SmartGuard, starts with prevention. Automated heat lamps are used to optimize the environment for piglet health. SmartGuard adjusts the lamp's brightness to reach an ideal temperature, then turns off the heat lamp and turns on an orange comfort light that mimics the heat lamp's brightness. This draws piglets away from their mother when they finish eating. Similar to a baby monitor, the proactive approach listens to each piglet's every squeal to accurately detect those that signal a crushing event. When it hears a piglet in peril, SmartGuard delivers a strong vibration, followed by a gentle impulse, that motivates the sow to stand up and, over time, conditions her not to crush her offspring.

SmartGuard also helps farmers and veterinarians care for the health of sows. SmartGuard's sensors track each sow's temperature and movement in real time. SmartGuard can tell the farmer and the vet when a sow is about to give birth, whether she is getting up and eating, or whether she has a fever so that proper care can be administered.

Commercialization: SwineTech is cultivating use among veterinarians as they are the trusted authorities that farmers turn to with questions for saving animals' lives and ensuring the health of sows. Real-time data from SmartGuard that provides feedback on the health of pigs saves vets the time they would spend checking each animal in a facility. Veterinarians know exactly what each farm needs before leaving the clinic. They make the same money, the pigs receive the same care, and it's all more efficient. SwineTech is conducting a series of university trials at the veterinarians' behest. Each SmartGuard is priced at $1,000, and each farm needs an average of 40 units. Extensive interviews revealed that customers would accept that price if SmartGuard delivers a 3:1 return in reduced piglet mortality, better sow health, and less antibiotic use. Finally, SwineTech knows that customer service is vital, and will help install each product upon delivery.