

## Adhesive Patch for Safe Application of Dehorning Paste with Calves

### Market and Background

The horns of livestock are removed to prevent injury to animals and their handlers. Cattle's horns can get caught in fences or vegetation, be a health risk if broken or infected, and can require specialized handling equipment. As such, nearly all dairy farms practice some form of dehorning, whether by hot iron, cutting, or use of a caustic paste. In a 2020 survey of Wisconsin dairy farmers, 67% reported use of caustic paste for disbudding. This product is often applied in the first few days of life and aims to cauterize and destroy horn buds before they have attached to the skull. The application of caustic paste may be preferred over other disbudding methods because it is bloodless, non-invasive, less painful to the calf, and subjects the calf handler to less risk of injury. However, challenges remain for calves following application and current methods of applying the paste pose a risk for secondary exposures to both handlers and other animals.

To manage calves immediately after the application of dehorning paste, a strip of duct tape is commonly put over the paste and horn area, or petroleum jelly is placed around the horn bud, and they are separated from others. If exposed to rain, farmers report the paste running into the calves' eyes resulting in burns and irritation. If the tape comes off, there is a risk the paste can be transferred to the enclosure, equipment, and other animals causing harm. Handlers must also be careful to protect themselves from exposure to the paste during the messy process. There is a clear need for a better method of applying caustic paste to calves and isolating the paste where administered providing for both improved animal welfare and enhanced safety for handlers.

Overall, the number of cattle at larger farms is increasing. The Dairy Herd Management Market is expected to reach nearly \$4 billion by 2027 and continue its CAGR between 6-7%. As such this unique technology is poised to address a substantial and growing market.

### Research and Development Status:

Faculty from the University of Wisconsin-River Falls, in collaboration with faculty from the University of Wisconsin-Platteville, have developed a purpose-designed adhesive patch for the safe application of dehorning paste. This unique design is comprised of a round patch with an inner circular cap to hold the caustic paste in place over the same diameter of the horn bud. Outside of this is a ring for the adhesive and a lift tab for easy removal. Multiple prototypes are currently being tested for efficacy in different calf environments on multiple dairy farms and against existing methods for applying caustic paste. Variables such as adhesive and paste volume continue to be optimized throughout.

### Applications and Key Benefits:

- Provides a self-contained and consistent application of dehorning paste.
- Eliminates the need for duct tape or petroleum jelly to prevent the paste from spreading.
- Protects the calf from unnecessary chemical burns from run-off, too much paste, or contact from other calves.
- Provides a safer method for farm employees in the application of caustic dehorning paste.
- Allows for the effective disbudding of calves within the first seven days of life.

### Intellectual Property:

A patent application is pending for this technology. For more information, please contact our licensing team at [licensing@wisys.org](mailto:licensing@wisys.org).

### Development and Commercialization Needs:

WiSys is currently seeking development partners for the optimization of the prototype and adhesive, as well as strategic partners for its manufacture who could provide a route to market for commercialization.