



## Tillamook County Cow Pads

### Full Mitigation Best Practice Story

#### *Tillamook County, Oregon*

**Tillamook County, OR** - The February 1996 floods resulted in the death of 700 dairy animals on the farms in the Tillamook floodplain. Almost every farm lost cows. The flooding on the Nehalem River also had a very significant impact on the Sunset drainage district and all its members, resulting in widespread devastation, as well as damage to the levee system. The district encompasses nearly 1000 acres, most of which is agricultural land supporting six dairy farms. In Nehalem, the Marti Dairy farm lost their whole herd and their house, too.



The total economic loss in this area was estimated to be \$5 million in both livestock and milk production. There are approximately 18 dairies in Tillamook County that need elevated refuge areas for livestock because their locations are in areas susceptible to severe flooding.

The creation of cow pads is an innovative solution to saving livestock during flooding. In the February 1996 flood, farmers couldn't get their cows to higher ground. This FEMA Hazard Mitigation Grant project provided funds to bring higher ground to the cattle. Tillamook County determined that the amount of fill for the cow pads was permissible on the 100-year floodplain.

With appropriate permits in place, FEMA mitigation funds were used to construct four cow pads on three farms. These large mounds of dirt will serve as a safe holding area during flooding. The pads are built to an elevation of approximately 4 feet above the 100-year base flood elevation and will be large enough to accommodate the entire herd. The Chelone Dairy Farm will have a massive cow pad that covers almost an acre to hold 600 cows. The pads will be built in close proximity to existing barn structures, which are subjected to flooding, and will be the location and foundation for new milking barns.

At the same time, this project solves another problem for the Oregon Department of Transportation (ODOT): what to do with the excess soil and rock debris from landslides on roads and highways in the area. The project got a jump start when Oregon Department of Transportation volunteered to supply rock and soil from nearby landslides free of charge. Over 200,000 cubic yards of dirt from the massive Fishery Point slide on Highway 101 south of Nehalem has been used to construct the cow pads. According to the Tillamook County Community Department, ODOT was pleased to have a useful disposal site for excess dirt.

Community meetings were held with residents to identify properties that would benefit from being elevated by determining flood zone and repetitive flooding history and projection. In addition, the County worked on a continual basis with Oregon Emergency Management.

This project is expected to save over \$5 million in losses. Farmers will no longer fear flooding, and will no longer lose cows and have to replace their stock. The cow pads will provide a safe haven for the herds.

Standard Homeowner's insurance policies do not cover flood damage. The National Flood Insurance Program makes Federally backed flood insurance available to homeowners, renters, and business owners in participating communities.

Activity/Project Location
Geographical Area: <b>Single County (County-wide)</b>
FEMA Region: <b>Region X</b>
State: <b>Oregon</b>
County: <b>Tillamook County</b>

## Key Activity/Project Information

Sector: **Public**  
Hazard Type: **Flooding**  
Activity/Project Type: **Land Use/Planning**  
Structure Type: **Wood Frame**  
Activity/Project Start Date: **08/1998**  
Activity/Project End Date: **10/1999**  
Funding Source: **Hazard Mitigation Grant Program (HMGP); Local Sources**  
Funding Recipient: **Local Government**  
Funding Recipient Name: **Tillamook County**

## Activity/Project Economic Analysis

Cost: **\$241,000.00 (Estimated)**

## Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Yes**  
Federal Disaster #: **1099 , 02/09/1996**  
Value Tested By Disaster? **Unknown**  
Repetitive Loss Property? **Unknown**

## Reference URLs

Reference URL 1: <http://www.fema.gov/business/nfip/>  
Reference URL 2: <http://www.floodsmart.gov/>

## Main Points

- Cow pads were built to an elevation of approximately 4 feet above the 100-year base flood elevation and large enough to accommodate the entire herd. the pads were built from the excess soil and rock debris from landslides on roads and highways in the area.
- At the same time, this project solves another problem for the Oregon Department of Transportation (ODOT): what to do with the excess soil and rock debris from landslides on roads and highways in the area.
- This project is expected to save over \$5 million in losses. Farmers will no longer fear flooding, and will no longer lose cows and have to replace their stock. The cow pads will provide a safe haven for the herds.