

Formation of an Illegal Dumping Prevention Program to reduce the potential impacts of E. coli 0157:H7 in agricultural produce.

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Introduction

Illegal dumping and littering of solid waste continues to be a problem for many communities nationwide. Monterey County has seen an increase in littering and the illegal disposal of solid waste over the last five years with no end in sight. This problem has taken on a new emphasis as the accumulation of solid waste along or within surface water drainage systems has contributed to increased flooding of agricultural land. The California Department of Health Services (DHS) and the Federal Food and Drug Administration (FDA) have determined that the flooding of agricultural produce fields in 2002 & 2003 may have been directly linked to several outbreaks of Escherichia coli 0157:H7 (E. coli 0157:H7) in "ready-to-eat" produce grown in Monterey County.

The Monterey County Health Department, Environmental Health Division has taken a proactive approach in addressing the illegal dumping and littering of solid waste by developing an Illegal Dumping Prevention Program through the formation of an Illegal Dumping and Litter Abatement Task Force. The task force has formed partnerships with State and local agencies, community groups, and agricultural representatives to develop a multifaceted approach to reduce and/or eliminate the incidence of illegal dumping and littering to protect the environment and eliminate health hazards.

Project Goal

To implement an Illegal Dumping Prevention Program to reduce the rate of illegal dumping and littering in Monterey County. The reduction in illegal dumping and littering may reduce the potential flooding of agricultural farmland and in turn would reduce potential impacts of floodwaters containing the E. coli 0157:H7 bacterium from contaminating produce grown and harvested in Monterey County.



Figure 1. Photograph of agricultural field flooded after heavy rains. Farmland was implicated in E. coli 0157:H7 outbreaks in 2002 & 2003.

Figure 2. Photograph of agricultural produce fields and their proximity to stormwater drainage systems.



Archetypes

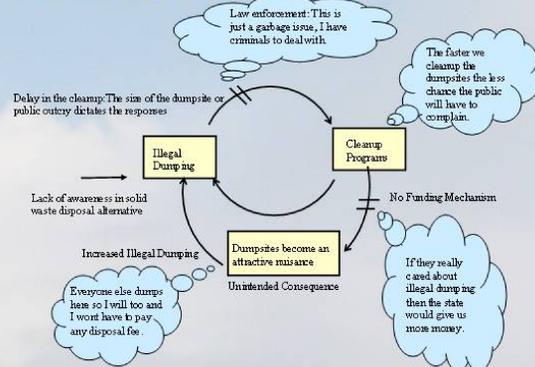


Figure 3. Fixes that Backfire Archetype

Figure 3. Demonstrates the "Quick Fix" response that "Backfires" when actions taken to clean up the litter or illegal dump sites fail and the problem perpetuates as a vicious cycle. With decreases or delays in funding the illegal dumpsites become attractive nuisances and this becomes the unintended consequence of this archetype. The "Mental Models" indicate what the participants may be thinking and how this thinking allows the fix to backfire.

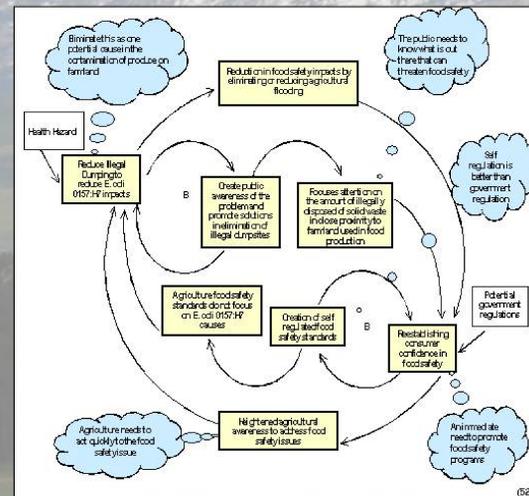


Figure 4. Accidental Archetypes

Figure 4. Demonstrates the activities implemented to address food safety issues by the agricultural industry and the task force. Conflicts develop between the task force and the agriculture industry causing them to become "Accidental Adversaries." This occurs as both groups draw attention to the food safety issues associated with E. coli 0157:H7. The focus on illegal dumping and its effects in the agricultural setting may cause the public to view agricultural conditions as unsafe and unsanitary.

Project Plan

Outcome Objective

By December 31, 2007, reduce the amount of illegal dumpsites to 50%, and reduce the impacts to the environment and public health by reducing the potential of flooding of farmland.

Determinant

1. Reduction in agricultural flooding.
2. Decreased incidence of E. coli 0157:H7 in produce.
3. Reduction in the number of illegal dumping complaints reported.
4. Increased public participation in elimination of illegal dumps.

Impact Objective

By December 31, 2007, the Task Force, the public, and the agricultural industry will work effectively together to reduce the incidence of illegal dumping and littering in Monterey County.

Contributing Factors

1. Lack of public awareness of alternatives to illegal dumping of solid waste through recycling, reuse and/or reduction of solid waste.
2. Lack of public awareness of existing alternatives provided by Solid Waste Hauler programs to remove solid waste from curbsides.
3. Economic factors leading to illegal disposal
4. Lack of enforcement of existing laws
5. Lack of bilingual programs
6. Lack of an ongoing educational program

Process Objectives

1. Improve law enforcement participation
2. Increase participation of community groups in the annual clean up program.

Next Steps

1. Establish an annual Monterey County Clean Up Day.
2. Establish an Awareness Campaign
3. Increase law enforcement participation.
4. Increase cooperation with the agricultural industry
5. Implement Systems thinking to address other potential factors in the spread of E. coli 0157:H7 in produce.

Conclusions

The Illegal Dumping Prevention Program examines one potential impact to the environment and most importantly the food safety issues concerning ready-to-eat produce in Monterey County.

Implementation of the Monterey County Illegal Dumping and Litter Abatement Task Force initiatives will help to eliminate illegal dumping as one of many factors that may cause food safety concerns. It is not anticipated that a successful program alone will eliminate the threats to food safety.

The knowledge gained in this program will enable the Environmental Health Division to use a systems approach in addressing other potential threats to food safety as identified by the FDA and the State of California Department of Health Services. These potential threats have been identified as fecal matter from cattle and/or feral pigs, farm worker field sanitation, composting operations, failed septic systems, illicit dischargers waste water and storm water discharges.

Current plans include enhancement of the county field toilet inspection program, composting operation inspections, and increasing surveillance for illicit discharges of waste water from homes and farms along storm water drainage systems to prevent surface water contamination by E. coli 0157:H7.

Literature cited

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For further information

You may contact me at ramirezj1@co.monterey.ca.us for more information on this project or the EPHLI website at: [http://www.hearthlandcenters.slu.edu/ephli/final Projects.htm](http://www.hearthlandcenters.slu.edu/ephli/final%20Projects.htm)

