



# Keep It Clean

## Plastic Contamination Costs Cotton Growers in Your Community

**Cotton is the world's preferred fiber.**<sup>1</sup> Purity and consistency are important for maintaining cotton's usability in textile supply chains.

Contamination from plastic can have a range of serious and costly effects, and it can arise from something as simple as a plastic bag floating through a cotton field during harvest.

In ginning, the first stage of processing after the field, plastic can be broken up and distributed on gin saws, potentially spreading plastic content beyond the original source field or producer.

### Plastic Costs Producers

If plastic is detected in classing, it immediately results in a 40 cent/lb discount for that bale.<sup>2</sup>

This is the highest penalty for discounting in the USDA system. The ultimate loss to the producer could exceed this amount.

For a producer, a 40 cent/lb penalty equates to about \$200 dollars of lost revenue per bale. In the current price environment, that represents more than half of the value for each affected bale.

### Plastic Costs Manufacturers

Plastic can be challenging to detect because it is not uniformly distributed throughout a module or bale.

If plastic is not detected in classing and the contaminated cotton is sold into the supply chain, it will result in increasingly higher costs because more of the value added in processing is lost if the goods are rejected later.

Costs at manufacturing stages are not limited to the losses incurred from rejected goods. As with ginning, plastic can be broken apart on machinery. This can cause the contamination to spread and can require expensive downtime to clean equipment.

### Global Implications

Beyond the direct costs to growers and textile manufacturers, there is also reputational risk for U.S. cotton.

If U.S. cotton is discounted relative to cotton from other countries because of an association with plastic content, every single cent per pound lost can represent millions of dollars of lost income for US farmers.<sup>3</sup>





## Environmental Impacts

While the economic costs of plastic contamination are clear, the environmental impact is equally troubling.

Plastic waste in cotton fields, such as discarded bags or wrappers, is not only an eyesore but also a persistent pollutant. Unlike organic materials, plastic doesn't readily biodegrade, leading to long-term pollution that can negatively impact the very land cotton growers rely on.<sup>4</sup>

As plastic degrades into smaller particles, known as microplastics, it can infiltrate the soil, disrupting its health and fertility. Recent studies have shown that microplastics can significantly affect soil ecosystems, altering the composition and abundance of vital soil organisms like microarthropods and nematodes.

These disruptions can cascade through the soil food web, impacting soil microbial communities and potentially altering soil carbon and nutrient cycling. Such changes can degrade soil health over time, leading to lower crop yields and diminished soil productivity.<sup>5</sup>

Wildlife in and around cotton fields is also at risk. Animals can ingest plastic debris, leading to injury or death.<sup>6</sup>

For cotton growers, maintaining a clean and plastic-free environment is essential not just for economic reasons but to protect the land and resources that sustain their livelihood.

## Sources

<sup>1</sup>Cotton Corporation International & Cotton Incorporated's Global Lifestyle Monitor Survey, 2023 (n=13,070 from 13 countries including the U.S., Mexico, Colombia, U.K., Italy, Germany, Turkey, India, Vietnam, Thailand, Indonesia, China, Japan) – Respondents were given a list of fibers, with the ability to enter any fibers that were not listed if they preferred a different fiber.

<sup>2</sup>USDA Farm Service Agency (<https://www.fsa.usda.gov/programs-and-services/price-support/commodity-loan-rates/index>)

<sup>3</sup>Cotton Incorporated calculations. Simply lbs of production x 1 cent/lb = tens millions of dollars, regardless of the year chosen for production.

<sup>4</sup>Alam, Ohidul, Mukaddis Billah, and Ding Yajie. "Characteristics of plastic bags and their potential environmental hazards." *Resources, Conservation and Recycling* 132 (2018): 121-129.

<sup>5</sup>Lin, D., Yang, G., Dou, P., Qian, S., Zhao, L., Yang, Y., & Fanin, N. (2020). Microplastics negatively affect soil fauna but stimulate microbial activity: insights from a field-based microplastic addition experiment. *Proceedings of the Royal Society B*, 287(1934), 20201268.

<sup>6</sup>Dhairykar, M., Jawre, S., & Rajput, N. (2022). Impact of plastic pollution on wildlife and its natural habitat. *The Pharm Innovation Journal*, 141-143.

