Does sustainable cotton production drive productivity and profitability for farmers?

Cotton Council International (CCI) is a non-profit trade association that promotes U.S. cotton fibre and manufactured cotton products around the world since the past 60 years. It has set upon its mission to improve the value-added premium that delivers profitability across the U.S. cotton industry and drives export growth of fibre, yarn, and other cotton products. Using technological advancements, they have been able to introduce new varieties of seeds as well as completely mechanize the process of picking cotton.

A whole-farm approach includes setting aside in-field corridors and buffer zones bordering cotton field that are allowed to grow back wild with native plants.

These create natural habitats and food sources not just for bees, butterflies and small birds like quail, but also for larger species like deer. In this context, implementing field borders with perennial grasses and wildflowers allows pollinator species to thrive and improves the habitat quality for adjoining cotton-farmed areas which is beneficial for the crop itself. Typically, farmers may set aside land that is less efficient, or with more challenging terrain, which allows them to focus on the most appropriate land for cotton production.

Minimum-tilling and cover crops

In addition to setting aside land to promote natural habitats, U.S. cotton farmers are increasingly adopting minimum- and no-till practices, and the use of cover crops, both of which also have a massively positive impact on biodiversity and soil health. Minimum and no-till systems improve soil structure by promoting a diversity of micro-organisms that have a symbiotic relationship with the cotton planting roots. By leaving soil intact and not turning it over carbon is retained, reducing the GHG impact. Combined with minimum- and no-tilling practices, the use of winter cover crops also contributes to removing carbon dioxide from the atmosphere. The land is covered in plants all year round, doubling its CO_2 extraction potential.

Cover crops are hugely beneficial to biodiversity and soil health in other ways, as well as reducing other inputs. For example, at planting time for cotton, the residue left over the cover crop serves as a natural mulch to decrease evaporation, conserve moisture, and prevent soil erosion. “We see the difference for example in the heat of the summer between land that had been planted with cover crops and those without, where the land with residue from the cover crops

will be cooler and also have greater moisture retention," as one Louisiana cotton farmer put it.

The roots of the cover crops like radishes help break through compacted soils, and the earthworms that abound because the mulch from cover crops provide them with shade and food, also loosen and naturally aerate the soil. This in turn allows for better water absorption and less water run-off, species like hairy vetch, which extracts nitrogen from the air and makes it available for the cotton crop, and the early-spring-flowering crops are a boon for pollinators that proliferate wherever cover crops are routinely used. Healthy Soil is the basis of our growers' livelihoods

The quiet revolution

A quiet revolution has been happening across U.S. cotton farms. It is a revolution whose soundtrack is the gentle flutter of butterfly wings, the buzzing of bees, and a symphony of other wildlife, scented and coloured by an abundant pollinating floral tribute.

It is a philosophical revolution that promotes plant, animal, and microorganisms' interaction above and below ground. It is the revolution of the inexorable march of biodiversity and regenerative practices that are spreading across American cotton farms, to the benefit of flora, fauna, and farmers alike.

A whole-farm approach

Taking a whole-farm approach means thinking about biodiversity and cotton farming inclusively and together, rather than as mutually exclusive or even competing approaches. It's about appreciating the benefits – both evident and yet unknown – that a whole-farm approach can entail.

As Sledge Taylor, a cotton grower in Mississippi put it, "it is better to take a holistic approach on a farm as there are many benefits that we may not even understand yet. That's why we're incorporating biodiversity into a whole model".

Conclusion

Last, but not the least, in order to help enable and support a better future through more productive and sustainable practices, the Cotton Council International (CCI) has focused primarily upon innovation using technologies. Not only this, but they have also relied on the use of cover crops to help maintain the biodiversity and through its mulch reduce water losses when planting the cotton crops. These are commendable efforts which can be a valuable guidance for other cotton producing nations to take a step in the right direction.◆