Adoption Low-Till Forage Production in California

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Crop: Forage crops
Need: Providing year-round, inexpensive forages for dairy production
States: California

Background: To fill their need for year-round, inexpensive forages, California dairy producers typically plant and harvest a series of forage crops – small grains, corn for silage, milo and sorghum sudan.

The Problem: While this requires considerable tillage and seed-bed preparation ahead of each successive crop, the production systems lend themselves to conservation tillage approaches developed in other regions. Adopting these approaches could lower costs, reduce time between harvest and planting, and lessen dust by as much as two-thirds.

The Research: Jeff Mitchell from the University of California at Davis evaluated and refined strip-till and no-till planting systems for corn forage production and no-till drill winter forage planting in the San Joaquin Valley in terms of crop establishment, weed control and profitability. The work, conducted on the Larry and Daniel Soares dairy in Hanford, also sought to determine whether conservation tillage practices could enhance the quality of life of dairy producers as measured by profitability and the easing of time and labor requirements.

The Impact: The results are positive and encouraging. Since the project started in 2005, interest in conservation tillage has increased markedly in the San Joaquin Valley. Growers have learned that strip-tillage involves less intercrop tillage than normally employed following winter wheat chopping in preparation for spring corn silage planting. By converting to strip-tillage, a typical dairy producer could typically eliminate four or more tractor passes. With high fuel costs, fewer passes across the field are better not only for the field but also for the dairy producer. It has also been shown that strip-tillage and no-tillage for forage production can reduce particulate matter emissions by 50-90% compared with traditional tillage. "We estimate a reduction in costs of $50 an acre by using strip-tillage instead of traditional tillage," said Mitchell.

The Challenges Ahead: Strip-tillage may not work in all soil types. Heavier soils may be more difficult than coarser soils. Mitchell offers these thoughts for producers considering strip-tillage:

- Having some moisture in the soil prevents tilling up large clods
- Applying herbicide within a week of planting improves weed management
- It's best to use the same GPS system for both the strip-tilling and planting operations.

Improved strip-tilling could enable triple-cropping – the sequential growing of three crops in a year – which could help San Joaquin dairy producers manage manure nitrogen with minimal risk of losses.

Links: Overview: http://www.westernsare.org/Learning-Center/From-the-Field/Low-Till-Forage-Production
Project reports: https://projects.sare.org/sare_project/FW06-308/
Triple-Cropping Dairy Forage Production Systems through Conservation Tillage in California's San Joaquin Valley .

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