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Project Title: Arizona Extension Dairy Forage Initiative: Agronomic assessment of common forage commodities in the state of Arizona

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**Description**
Arizona ranks top 5 nationally in average milk produced per cow and 2nd in average herd size. Production of high-quality forage crops in a way that is both profitable and sustainable is extremely important to the dairy operations of the state. In order for large dairy operations to maintain their profitability they must control feed costs. In the arid southwest the main tool for reduction of feed costs is through local production of high-quality forages. Milk production is inherently related to high quality forages and for Arizona Dairy producers to maintain one of the world’s highest production levels they must produce and feed very high-quality forage. Water management is a significant limiting factor to Arizona forage production along with nutrient management and variety evaluation. In 2018 the Extension Dairy Forage Initiative was created in collaboration with dairy producers and consulting nutritionists to help address the needs of this important component of the industry. The objective of this project is to better understand the basic agronomic needs of the most popular forage sources in Arizona in order to make recommendations to growers that are timely and relevant. Recently secured funding from Cooperative Extension will allow us answer both the basic field questions posed by our dairy and grower stakeholders.

**Experimental design**
The experimental design will vary depending on the grower equipment, location and interests. As an example, 12 rows of corn per plot spaced 40 inches with a field length of ¼ mile, plot size would be roughly 1 acre, and 10 treatments x 4 reps would cover a 40 acre field. This would work for strip tests of varieties or perhaps fertilizer. Irrigation studied would be larger and require the use of an entire irrigation unit which can range from 5-20 acres per rep. All experiments are being designed for instillation on active farm using commercial harvesting equipment to collect data.

**Outcomes**
We will seek to generate information on agronomic needs for the three most common silage crop grown in Arizona, Corn. Information obtained from these trials will become part of the Arizona Dairy Forage Initiative and it will serve to deliver relevant information on the sustainability and future of forage production in the state. The outcomes of these experiments will be summarized and distributed to stakeholders throughout the state through online list serve (extension publication), presentations at our multiple forage meetings throughout the year (at least 3 meetings in the target counties), and in person through visits to producers. We
will also seek feedback from stakeholders to generate future steps for this initiative and ways to expand the scope and reach of this initiative. Experimental results will be used to seek additional funding (Federal and State) to support future Arizona Dairy Forage Initiative projects.