



# Developing sustainable and diversified farming systems for the NT: Agave trial

## The project

This project is investigating the suitability of different varieties of Agave across the Northern Territory. Agave is a succulent native to the American continent, with different varieties from regions including Mexico, Arizona, Texas and California. It is drought tolerant, suited to arid and desert climates. At maturity, Agave plants produce a sugary sap which can be distilled into spirits (including tequila), used as a syrup, or as a biofuel. As a by-product, the leaves are used in some countries as a source of feed for livestock.

This project will determine which (if any) varieties suitable for commercial use can be grown in Darwin, Katherine and Central Australian conditions. Critically, it will demonstrate the capacity of the crop to be grown without irrigation. If successful, the work will allow growers the potential to diversify into crops that are less reliant on water and improve their resilience in dry years.

This is the first stage of an investigation into the possibility of agave as a commercially viable crop in the Territory. The project, developing sustainable and diversified farming systems for the NT, received funding from the Australian Government's Future Drought Fund.

## Objectives

1. Trial *Agave tequiliana* and *Agave durangensis*, in multiple locations across the Northern Territory, including Darwin, Katherine, Ali Curung and Alice Springs assessing the plants in different environmental conditions.
2. To enable growers hands on experience with the crop on farm, through small scale grower demonstration plots.

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## Summary

This project has two main components:

- Investigating the potential for agave as a low or no irrigation crop in Central Australia and Katherine. The trial will take place on Department of Agriculture and Fisheries (DAF) research farms between Katherine and Central Australia, looking at the performance of agave in these regions.
- Grower demonstration blocks throughout the Northern Territory.

This trial is part of a larger project to improve the resilience of growers through improved water use. The project, developing sustainable and diversified farming systems for the NT, received funding from the Australian Government's Future Drought Fund.



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(1) juvenile Agave plants prior to planting, (2) agave trial at Coastal Plains Research Farm (CPRF) in 2022, (3) Agave at Katherine Research Station (KRS) in 2022, (4) agave plants at CPRF in 2023.



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## The varieties



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Images (5) *Agave tequiliana* at CPRF; (6) *Agave duragensis* at CPRF

### *Agave duragensis*

Otherwise known as Cenizo, this agave grows to 1.8m. This variety is native to Mexico at elevations and is considered to be more frost tolerant than *A. tequiliana* and is used to make Mezcal, a distilled spirit.

### *Agave tequiliana*

Blue agave or tequila agave, this agave grows to 2m. This variety is native to Mexico and is used to make Tequila, a distilled spirit.

A quick note on the naming of agave based spirits

Any spirits made from agave are called Mezcal, only spirits distilled from the *A. tequiliana* can be called Tequila. Both terms are protected internationally and any agave based spirits made outside Mexico must use a different term.

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## Preliminary results

### *A. tequiliana*

- The *A. tequiliana* plants at CPRF are well established with few plant losses. The CPRF trial is planted on raised beds which has limited the potential for waterlogging during the wet season. The average height for these plants at November 2023 was 49cm tall, and roughly 1/3 of the plants carry off-shoots or "pups". In commercial production the pups are used to plant subsequent paddocks in a continuous loop of plant growth and harvest.
- The *A. tequiliana* plants at KRS are well established with few plant losses. The KRS trial is not mounded, and had some issues with waterlogging during the wet season.
- The *A. tequiliana* plants at the Arid Zone Research Institute (AZRI), based in Alice Springs, were not hardy enough to withstand the 9 frost days experienced in the first year. The trial was replanted in 2023 and these plants are still alive and established.
- The *A. tequiliana* plants at grower partner properties throughout Central Australia. Grower partners in the Alice Springs region kept their plants in a shadehouse/nursery over the first winter and planted into the field in the following spring. These plants were able to withstand the 9 frost days and are now well established

### *A. duragensis*

- The *A. duragensis* plants were grown from Tissue Culture and were much smaller than the *A. tequiliana* stock. They have been held at the Berrimah Farm Science Precinct nursery facilities and were planted at CPRF in late 2023. They will also be planted at KRS, AZRI and grower partner properties in May-June 2024.



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