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Can Your Smartphone Help You Identify Weeds?

We all know the importance of accurate identification of our weeds. A good herbicide selection for the right species protects our crops from weed competition for water, nutrients, space, light. In addition to reducing our yields weeds can be hosts for insects and harbor diseases that could severely harm our crops.

Last Friday students from the applied weed science class PLS 300 from University of Arizona agreed to test one of the many smart phone applications for weed identification. There are various phone apps for this purpose such as: "ID Weeds", "Savvy Weed ID & Control", "Weed ID" from Bayer, and "PlantNet".

We decided to test "PlantNet" which we noticed worked reasonably good for some the species in our area. The instructor, Barry Tickes collected 13 weed specimens that are currently growing in Yuma and other samples from the weed science lab at the Yuma Ag Center. We asked 9 students to download the free application and ID the weeds by taking a picture and uploading the image to PlantNet.

The species ID and results are in the following table:

Species	1	2	3	4	5	6	7	8	9
Lesser Swinecress	✓	☹	✓	☹	✓	✓	☹	✓	☹
London Rocket	✓	✓	✓	✓	✓	✓	✓	✓	✓
Sowthistle	✓	✓	✓	✓	✓	✓	✓	✓	✓
Goosefoot	✓	✓	✓	✓	✓	✓	✓	✓	✓
Fanleaf	✓	☹	☹	☹	☹	☹	☹	☹	☹
Shepherspurse	✓	✓	✓	✓	✓	✓	✓	✓	✓
Spiny sowthistle	✓	✓	✓	✓	✓	✓	✓	✓	✓
Malva	✓	✓	✓	✓	✓	✓	✓	✓	✓
Bermuda grass	✓	✓	☹	✓	✓	✓	✓	✓	✓
Wildoat	✓	✓	✓	✓	✓	✓	✓	✓	✓
Johnsongrass	✓	✓	✓	✓	✓	☹	✓	✓	✓
Six Weeks grama	✓	✓	☹	✓	✓	☹	☹	☹	✓

Annual blue grass	✓	✓	✓	✓	✓	✓	✓	✓	✓

From the 117 ID's the application gave 18 times a wrong ID. This means 84.6 % of the time this app was correct in the weed identification. Seems like "Fanleaf" a very abundant species in our area was difficult for the application. I must mention the specimen was not in very good condition which makes ID more difficult.

Because it would be difficult to find an application with 100% accuracy, we recommend searching sources such as the University of Arizona herbarium resources and their pictures of cured specimens, "An Illustrated Guide to Arizona Weeds" (Kittie F. Parker), "Weeds of the West" (Burrill et al.) or "Weeds of California and Other Western States "(J.DiTomaso). Please let us know if you find any of the Smartphone apps useful or if we at the Yuma Agriculture Center can be of any help with your weed ID.

Fanleaf *(Tiquilia plicata)*