



## البحث السادس

### الملخص باللغة الإنجليزية:

Dry land characterizes by low fertility and poor structure. For sustainable agriculture, it needs some technologies application such as suitable variety and plant density for crop management to enhance crop performance. For studying yield behavior under such conditions, two field trials were conducted using five sweet sorghum varieties (Brandes; V<sub>1</sub>, Honey; V<sub>2</sub>, Gk Áron; V<sub>3</sub>, Róna 1; V<sub>4</sub> and GK Csaba; V<sub>5</sub>) and three plant densities (111000; D<sub>1</sub>, 133000; D<sub>2</sub> and 166000; D<sub>3</sub> plants ha<sup>-1</sup>). Results indicated that all varieties differed significantly in all tested parameters; growth, juice quality and yield and its components. Of all investigated varieties, the most productive was V<sub>1</sub>, while V<sub>5</sub> was the least. Ethanol yield was recorded highest values with V<sub>1</sub> over two seasons. On the other side, V<sub>5</sub> flowered 25 days earlier than V<sub>1</sub>. Time of 50 % flowering and yields were increased with increasing plant density. The integrated V<sub>1</sub>×D<sub>3</sub> was found to be the best treatment generating highest ethanol (biofuel), yields and seed index (over two studied seasons). Therefore, this integrated treatment is recommended for dry environments.