Advantages the " Low Irrigations Systeme" on "ELS Cotton Varieties "

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Objetives of the Study

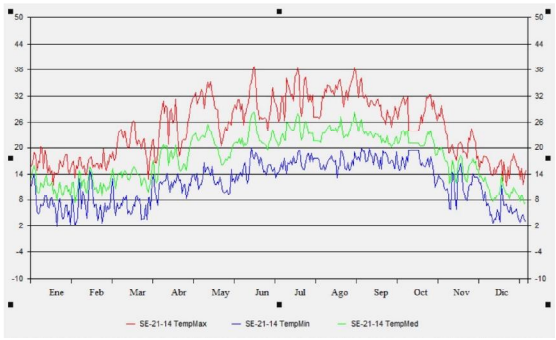
The aim of this investigations was to study of performance in yield and quality fiber parameters in **ELS** varieties in Spain, using irrigations system LEPA *(low energy precision applications)*,in **Drip & Pivots.**

Introduction

In Spain cotton area has "Mediterranean climate", the temperature varies widely during the growing season *(April-October),* **variations between 15 ° C to 43 °C. are normal**

GRAPHIC AVERAGE Tº Year 2014 in trial area

Red color Tº Max Green color Tº Average Blue color Tº Min



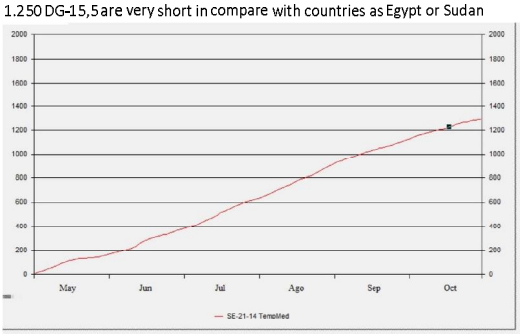
Introduction

- **ELS** fiber production began in Spain in 2007 and in 2014 reached 4,500 hectares with an average yield of fiber of **1,277 kg / ha**
- The **ELS** varieties used by producers are only interspecific hybrid varieties
- Reason is that in **ELS** fiber only hybrids able to adapt to our **GD-15,5**

The graphics show 1.246 DG-15,5

(from planting to harvest)

1.250 DG-15,5 are very short in compare with countries as Egypt or Sudan



27 th April to 19 October 1.246 DG-15,5

Material and Methods

The field was located in Seville *(Spain SW 37º 4'N)*

The soil type is called "Vertisol" *(deep, fertile soil and its physical composition is clay loam)*

Part of the land was irrigated by pivot and another part was irrigated by drip

Material and Methods

- **The trial consists 9 varieties with 4 replications** *(split plot)*. **The elemental plot was 4 row 10 meters long with a separation between row 0.75 meters.**
- **The distance between repetitions was 2 meters.**
- **The Seeding was effected on April 27**
- **The population density was 100,000 plants/Ha**

Material and Methods

Table of "ELS" varieties used in the test

LIST OF TESTED VARIETIES			
VARIETIES	SPECIES	TYPE	BREDEER
INTERCOTT-211	G. Hirsutum x G. Barbadense	HYBRID	HAZERA GENETIC
INTERCOTT-212	G. Hirsutum x G. Barbadense	HYBRID	HAZERA GENETIC
INTERCOTT-213	G. Hirsutum x G. Barbadense	HYBRID	HAZERA GENETIC
GW-HY 9	G. Hirsutum x G. Barbadense	HYBRID	GOLDEN WEST
GW-HY 15	G. Hirsutum x G. Barbadense	HYBRID	GOLDEN WEST
GW-HY 273	G. Hirsutum x G. Barbadense	HYBRID	GOLDEN WEST
GW-HY 277	G. Hirsutum x G. Barbadense	HYBRID	GOLDEN WEST
E-1	Gossypium Barbadense	Open pollinated	ISRAEL SEED
E-5	Gossypium Barbadense	Open pollinated	ISRAEL SEED

Material and Methods

Pívot Features

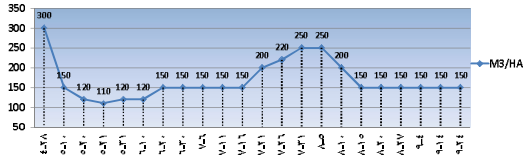
- ✓ Center Pivot Western 8120 model for 60Ha.
- ✓ 6-5/8" diameter spans and Overhang with Flexible drops at 1.2m over the ground, 15PSI Pressure Regulators and Nelson D3000 Sprays with Brown pads (For low crop as cotton).
- ✓ High float Wheels and 1HP UMC gearmotors
- ✓ The approximate flow rate was 1,3 liters/seconds/hectare

Material and methods

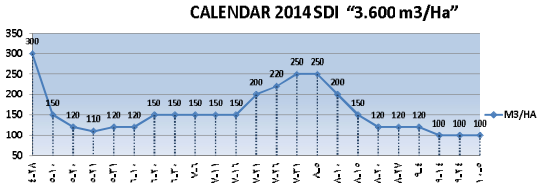
- **The Drip system used was PE** *(polyvinyl expanded)* **surface.**
- **The drippers were pressure-compensating at a rate of 2.2 liters / hour**
- **The distance between emitters was 50 cm, and the distance between row 75 cm**
- **The capacity was 5.8 liters / meter 2 / hour**

Material and Methods

CALENDAR 2014 PIVOT "3.690 m3/Ha"



CALENDAR 2014 SDI "3.600 m3/Ha"



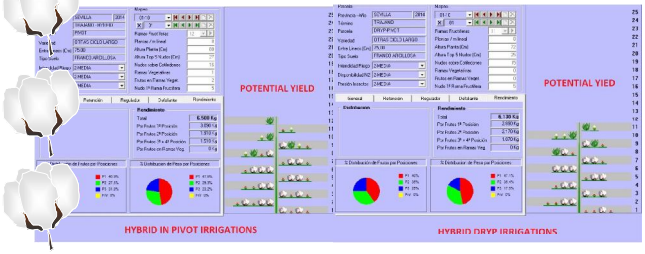
Material and Methods

- For the analysis of monitoring and predictions irrigation strategies has been used simulation software "PRECISION CROP MANAGEMENT"
- The following charts allow us to better understand the qualities of this program

Material and methods

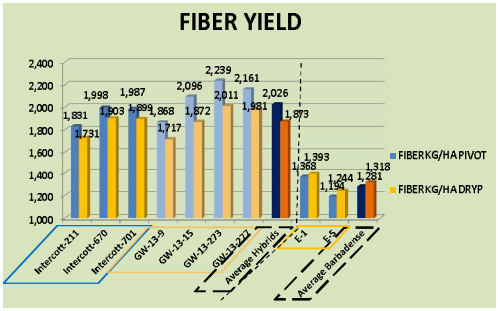
The chart shows the comparative study of the potential performance between PIVOT and DRIP

Monitoring was analyzed by PCM *(Cotton Precision Crop Management)*



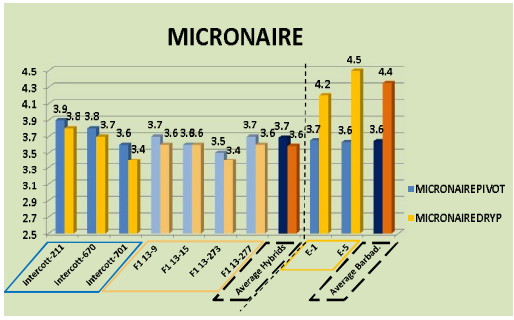
Results "Fiber Yield"

This graphic shows a performance increase yield in the varieties irrigated by Pivot



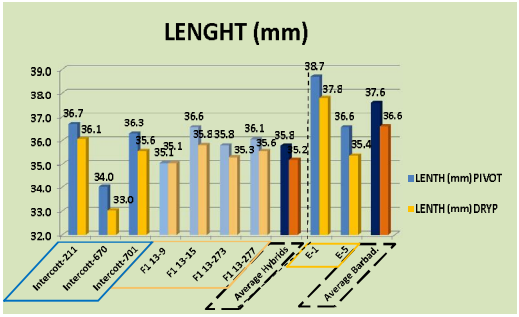
Results HVI "Micronaire"

This graphic shows that in the hybrid varieties, micronair parameter there is no significant difference between Pivot and Drip
The Barbadense varieties shows that the micronair is higher with the Drip systems



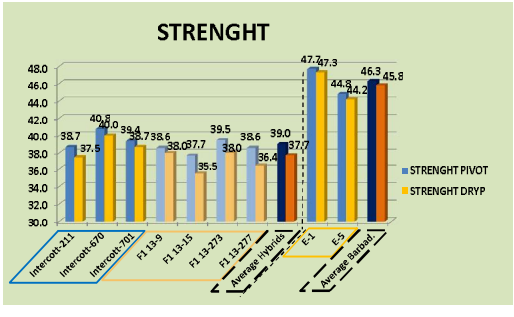
Results HVI "Lenght"

This graphic shows that Length parameter in the hybrid there are significant difference between Pivot and Drip



Resultados HVI "Strenght"

This graphic shows that both the hybrid varieties as barbadenses in the **strength parameter** there is no significant difference between Pivot and Drip



CONCLUTION

The results belong only **to 2014,** we will need the results of at least two more years to verify this data

In the year 2014 the conclusions were as follows

FIBER YIELD Kg/Ha.

☺ **Pivot irrigation** demonstrated superior performance to **Drip irriations**

FIBER QUALITY (HVI)

☺ The results of the main quality parameters measured with HVI, only the **length parameter** has had slight differences in favor of Pivot irrigation

Thanks to all