

Improving seed production reliability in Uruguay

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Uruguay:

Climatic conditions:

Average medium temp.: 16,4 °C

Average maximum temp.: 22,0 °C

Average minimum temp.: 11,3 °C

Average annual rain: 1,123 mm

Forage Seed Production:

Main species – ryegrass and tall fescue

Forage Market: 54,100 MT

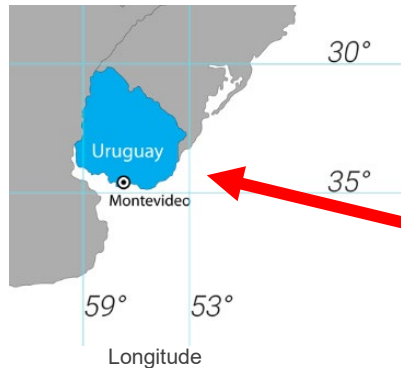
54% local market

25% exportation

21% farmers saved seed

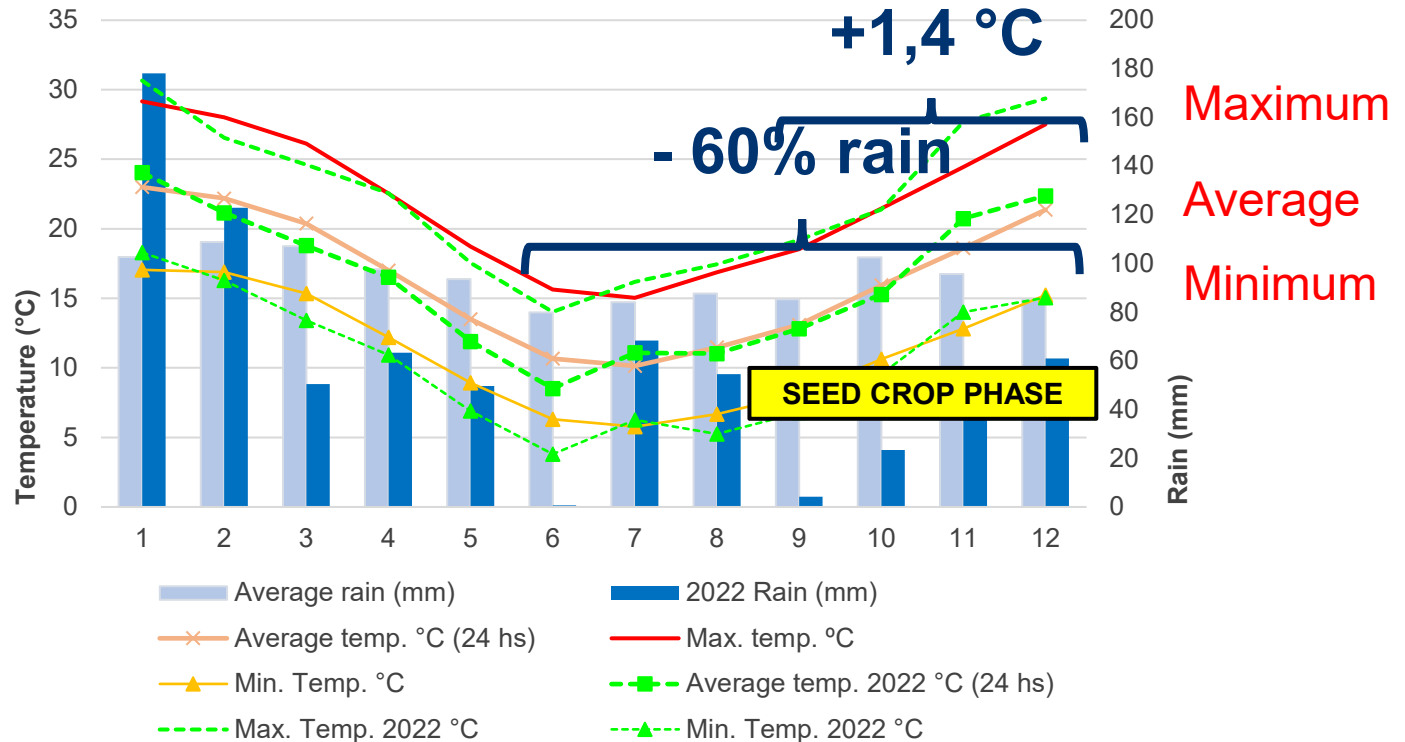
Annual Ryegrass is the main sp produced (18,000 MT), with a higher exported percentage (45%)

Uruguay:



Climate Change?

Prolonged drought in the last three spring/summers



Materials and Methods

Italian ryegrass cv. MAGNO

Irrigated vs. Dryland

Yield was measured with the farmer's combine

Yield component were evaluated in quadrants sample (0,5*0,5m):

- N° head/m²
- Spikelet/Spike
- Florets/Spikelet
- Full seed/Spike
- TSW

Direct production costs

- Inputs
- Service
- Irrigation



Materials and Methods

Sowing: May

Herbicide application: August

Grazing: August to September

Nitrogen: 146kg applied N

- Three }
Timings } • July (1/3)
 } • September (1/3)
 } • October (1/3)

PGR & fungicide: Z32 November

Windrowing: Dryland – November 29,
Irrigated – December 4

Harvest: Dryland – December 4,
Irrigated – December 9

Irrigation: 180 mm



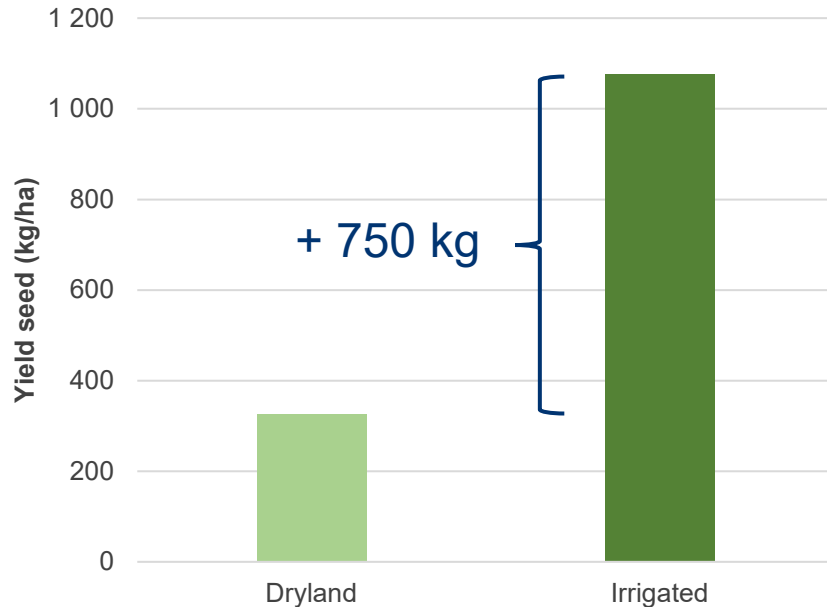
Aims

- Determine the difference in ryegrass seed yield between dryland and irrigated conditions
- Determine what yield components explained the yield variation
- Determine the profit of each system
- Improve grower confidence with irrigation use in ryegrass seed crops



Results: Yield/ha

Ryegrass Magno yield (kg/ha) Dryland vs. Irrigated



- Irrigated crop produced 3,2 times more than dryland crop
- 4,1 kg seed/mm applied
- Total biomass was twice in irrigated vs. dryland

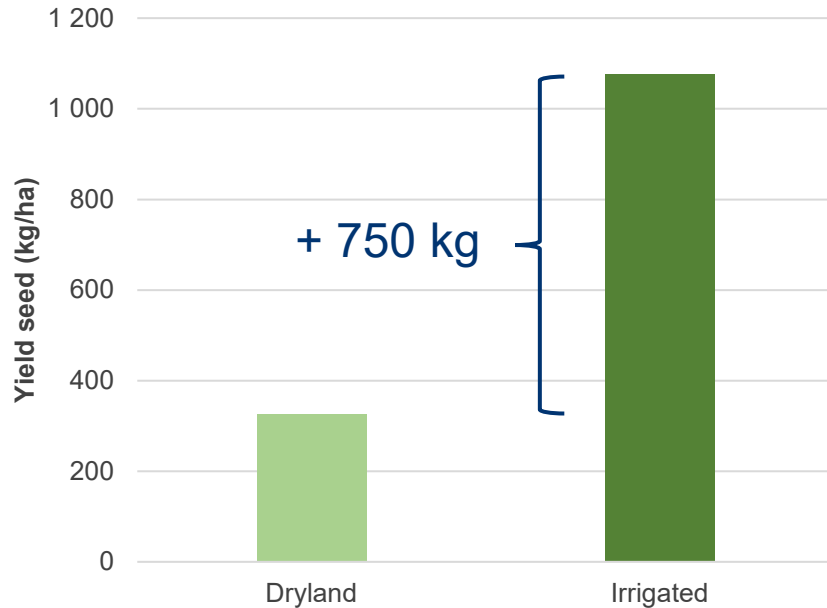
	Total biomass (kgDM/ha)
Dryland	6.821 b
Irrigated	13.071 a

- Harvest index was twice in irrigated vs. dryland

	Harvest index (%)
Dryland	4,8
Irrigated	8,2

Results: Yield/ha

Ryegrass Magno yield (kg/ha) Dryland vs. Irrigated

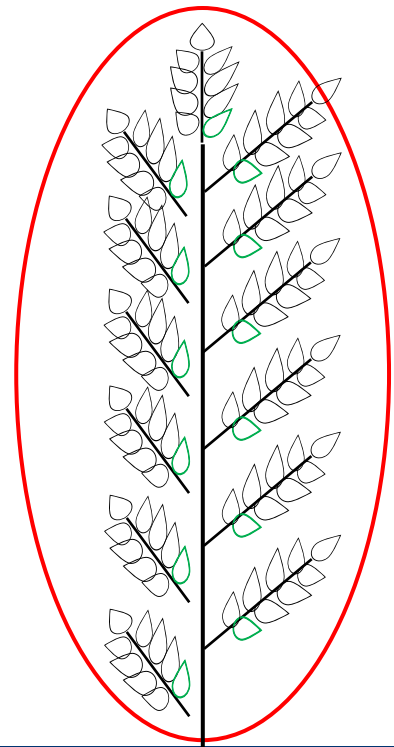


Why the big yield difference?

Results: Yield Components

	Dryland	Irrigated
Heads/m ²	735 b	1,009 a

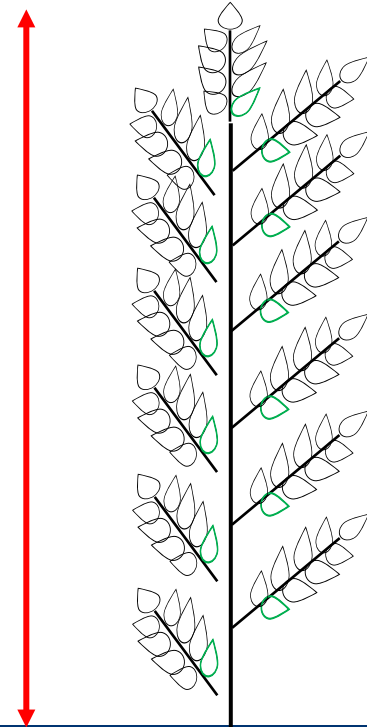
Number of



Results: Yield Components

	Dryland	Irrigated
Heads/m ²	735 b	1,009 a
Spike length (cm)	21,06 b	28,39 a

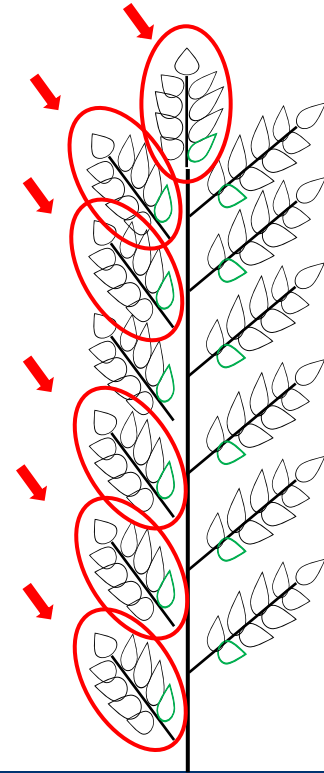
Length (cm)



Results: Yield Components

	Dryland	Irrigated
Heads/m ²	735 b	1,009 a
Spike length (cm)	21,06 b	28,39 a
Spikelets/Spike (N°)	28,75 a	28,10 a

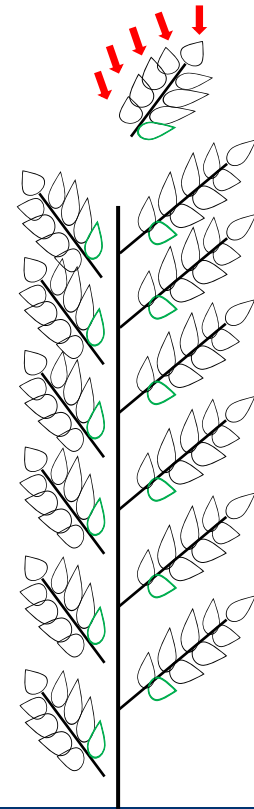
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Results: Yield Components

	Dryland	Irrigated
Heads/m ²	735 ab	1,009 a
Spike length (cm)	21,06 b	28,39 a
Spikelets/Spike (N°)	28,75 a	28,10 a
Florets/Spikelet (N°)	6,28 b	8,47 a

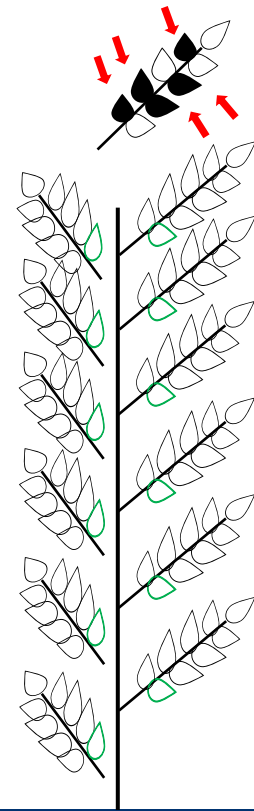
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Results: Yield Components

	Dryland	Irrigated
Heads/m ²	735 b	1,009 a
Spike length (cm)	21,06 b	28,39 a
Spikelets/Spike (N ^o)	28,75 a	28,10 a
Florets/Spikelet (N ^o)	6,28 b	8,47 a
Full seeds/Spikelet (N ^o)	3,84 b	5,50 a

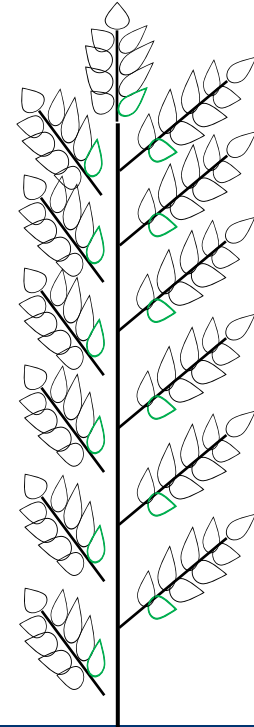
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Results: Yield Components

Weight 

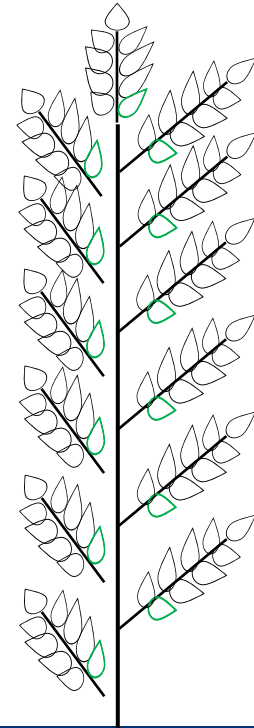
	Dryland	Irrigated
Heads/m ²	735 b	1,009 a
Spike length (cm)	21,06 b	28,39 a
Spikelets/Spike (N ^o)	28,75 a	28,10 a
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Full seeds/Spikelet (N ^o)	3,84 b	5,50 a
TSW (gr)	2,46 a	2,53 a



Results: Yield Components

Yield (kg/ha)

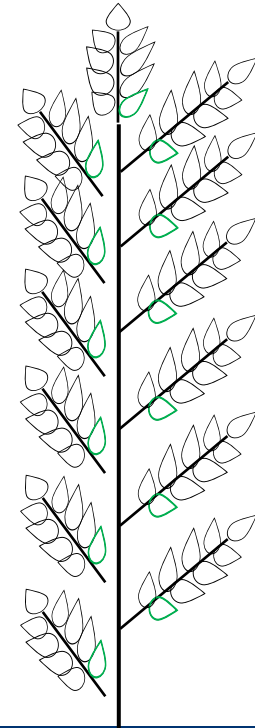
	Dryland	Irrigated	
Heads/m ²	735 b	1,009 a	+
Spike length (cm)	21,06 b	28,39 a	+
Spikelets/Spike (N°)	28,75 a	28,10 a	
Florets/Spikelet (N°)	6,28 b	8,47 a	+
Full seeds/Spikelet (N°)	3,84 b	5,50 a	+
TSW (gr)	2,46 a	2,53 a	



Results: Yield Components & Cost

Yield (kg/ha)
& Cost (USD/kg)

	Dryland	Irrigated	
Heads/m ²	735 b	1,009 a	+
Spike length (cm)	21,06 b	28,39 a	+
Spikelets/Spike (N°)	28,75 a	28,10 a	
Florets/Spikelet (N°)	6,28 b	8,47 a	+
Full seeds/Spikelet (N°)	3,84 b	5,50 a	+
TSW (gr)	2,46 a	2,53 a	
COST (USD/kg)	2.37	1.2	-



Conclusions

Irrigation of ryegrass in Uruguayan conditions:

- Improved yield (3 times more)
- Reduced costs (2 times less)
- Improved the reliability of yield

The improvement in yield and reliability under irrigated conditions will allow Uruguayan seed producers business opportunities

IMPROVING SEED PRODUCTION RELIABILITY IN URUGUAY

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Thanks!



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