19% of yield increase in barley, with applications of Qrop® K Plus and Speedfol® Cereal SP

The Bajío region is one of the main areas for growing winter-barley in Mexico. This barley is used for beer production. A local company, "Impulsora Agricola" takes care of storing and marketing the grains. As the current barley consumption in the country is higher than its production, the company seeks ways to increase the yields.

Objectives:

1. Validation of the benefit of using potassium nitrate (KNO_3) as a source of potassium, by applying it in the form of a formulated Speedfol® Cereal SP foliar spray product.

2. Check the benefit of Qrop® K Plus (prilled potassium nitrate based NPK 14-0-40) by soil application by side-dressing with the aim of increasing yield and quality of the crop.

Table 1. Location and crop data of the experiment.

Location:	Salamanca, Guanajuato, México.
Sowing date:	January 20, 2014
Aplication date:	February 17, 2014
Harvest date:	May 4, 2014

Table 2. Description of the control and SQM treatment.

Base dressing / Control SQM Treatment					
Time	**Fertilizers (kg/ha)**	**Appl. Rate (kg/ha)**	**N (kg/ha)**	**P_2O_5 (kg/ha)**	**K_2O (kg/ha)**
Sowing	DAP	150	27	69	
	Ammonium Sulfate	100	21		
	Potassium Sulgate	50		25	
	Ammonia	150	123		
Total		450	171	69	25
Side dressing					
Side dressing	Urea	300	138		
Foliar	Commercial foliar product	2L			
Total		300	138		
Side dressing - SQM Treatment					
Side dressing	Urea	300	138		
	Qrop ® K Plus	130	18		
Foliar	Speedfol ® Cereal SP	5		52	
Total		435	156		52

he trial was conducted in a plot of 10,3 ha of barley grown by a cooperating farmer. The treatment was carried out on 4,6 ha, while 5,7 ha served as the untreated control. Table 2 shows total fertilizer applications on both the SQM treatment and the control. Base dressing application was equal for the control and the SQM treatment.

Control:

2 litre/ha of a commercially available foliar product with the composition given in Table 3.

SQM treatment:

130 kg/ha of Qrop® K Plus + 5 kg/ha of Speedfol® Cereal SP.

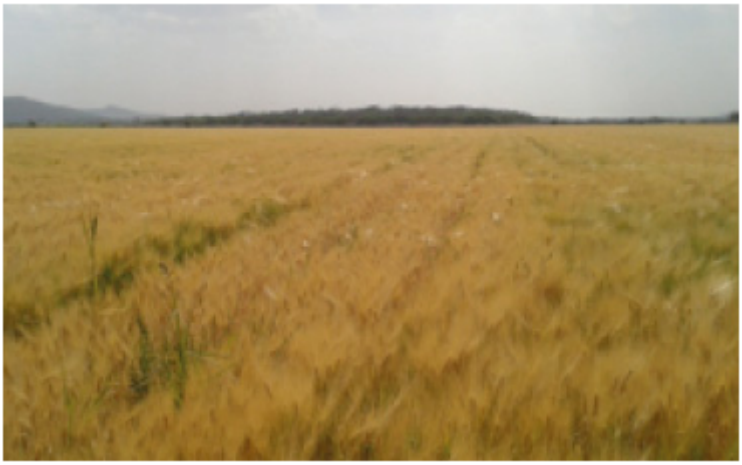

Figure 1. Photos from the trial field.

Table 3. Product composition of foliar product used in control treatment.

P_2O_5	25,64%	Boron	0,52%
K_2O	38,05%	Manganese	0,05%
Zinc	0,06%	Copper	0,04%
Iron	0,04%		

Table 4 sums-up the yields and the economic results obtained by the two treatments described above.

This experiment shows a very positive response of the barley crop to the application of both SQM products Qrop® K Plus and Speedfol® Cereal SP. A remarkable yield increase of 1.030 kg per hectare (19%) was obtained. This yield increase more than compensates for the additional costs incurred by SQM treatment, and increases in the grower's net income with 182 US$/ha, above the current growers' management.

Table 4. Comparison of economic analysis between SQM treatment and control.

Treatment	Yield (kg/ha)	Yield value (kg/ha)	Total income (kg/ha)	Additional costs (US$/ha)*	Net income (US$/ha)
SQM	6.340	292	1.850	135	1.716
Control	5.310	292	1.551	17	1.534
Difference	1.030	0	301	118	182

* = incurred by the treatment