EnviroSCAN® the original and still the best in Cotton

Introduction

Cotton is currently Australia's fifth largest crop and its estimated export worth is now AUD$1.6 billion (ABARE, 2001). In New South Wales alone there is an estimated 298 400Ha of cotton being farmed on irrigated land, with an average yield of 1.7t/Ha. (ABARE, 2000). A total farm management system as EnviroSCAN® to continuously monitor soil moisture levels plays an integral role in further improving farm management. EnviroSCAN® can offer growers a 20% increase in yields as well as water and labour savings within the first year.

A major area of concern for cotton growers is the current lack of water. Coupled with this issue is moisture stress and waterlogging as these can reduce yield by up to 18.8kg per hectare per day and 50 kg per hectare per day respectively. At cotton prices of $600 a bale this represents a penalty of $50 per hectare per day for stress and $133 per hectare per day for waterlogging. Therefore a continuous soil moisture monitoring solution as the EnviroSCAN® that can reduce these events occurring is worth considering.

EnviroSCAN®

Sentek's flagship product, EnviroSCAN® has become the most widely used continuously logging, irrigation management tool in Australia. The EnviroSCAN® is a complete and stand alone soil moisture monitoring solution. The data obtained by the EnviroSCAN® sensors is collected by a central logger and then downloaded by the grower through a variety of telemetry methods. The EnviroSCAN® software program converts this information into graphical form to give growers a better understanding of moisture levels in the soil profile.

EnviroSCAN®'s Positive Influence on Farm Management Practices

As a key component of many growers total farming systems, Sentek's EnviroSCAN® has helped growers to fine tune their irrigation and farming practices, allowing them to **save water, reduce labour and increase yields.**

The continuous monitoring of multiple depths at multiple sites providing instant water management information has enabled cotton growers to significantly reduce irrigation related expenses and improved crop yields.

EnviroSCAN® has allowed many cotton growers to reduce the number of irrigations they make per season by knowing exactly when the crop needs water. By being able to set the EnviroSCAN® to monitor crop water usage each hour, cotton growers have discovered they can irrigate just as the crop reaches moisture stress, reducing the number of irrigation's per season from eight to six, which in turn reduces the number of waterlogging events each season.

How Growers use EnviroSCAN®

EnviroSCAN® monitors soil moisture levels on a continuous basis. The data is then downloaded to a grower's computer as frequently as once a day depending on the weather and how close the crop is to needing irrigation. The easy to read graphs tell growers exactly when the crop is nearing moisture stress and thus requiring an irrigation. The graphs also help growers determine how much water is needed to keep the crop in the zone of "optimal" soil moisture for as long as possible. Also, as cotton is three times more sensitive to waterlogging than any dry water stress, a key benefit for many cotton growers has been the ability to reduce the number of days the crop spent in waterlogged conditions.

EnviroSCAN®'s Accuracy

The EnviroSCAN®'s accuracy, as reported by many leading commercial, research and agricultural groups allows growers to obtain a more accurate picture of district trends in water use.

Increased Profits achieved by Cotton Growers

Many cotton growers throughout Australia have significantly increased profits as a result of their farm management system, in which irrigation management with an EnviroSCAN® system plays a crucial part.

Direct achievements contributing to their increased profits have included:

Increased Yield

- ✓ *… increased yields from an average of 8 bales/Ha a season to an average of 9.8 bales/ha over the last three seasons -* ***an increase of over 20%!***

- ✓ *… in the 99/00 season, over 350Ha of cotton farming an increase in revenue of $286,020.*

Water Savings

- ✓ *… water savings of 525ML over 350 hectares have resulted in* ***a total saving of over $5,512.50 just in water savings.***

- ✓ *… the number of* ***waterlogging events*** *for the cotton crop have been* ***significantly reduced*** *thus* ***extending growing season by 7-10 days.***

- ✓ *…* ***reduced*** *our* ***water use from around 9 ML/Ha to 7.5 ML/Ha.***

- ✓ *…* ***water use efficiency has also gone from 0.9 bales/ML to 1.3 bales/ML****.*

- ✓ *…* ***an increase of 0.4bales/ML of water applied.***

Labour Savings

- ✓ *… reduced labour input into irrigation related matters by* ***35 to 70 hours per season****.*

Return on Investment within the First Season

For many growers investment in an EnviroSCAN® system for their cotton property was returned within the first season through water cost savings alone. Increased yields and reduced labour inputs were an additional bonus for many of the cotton growers. This is presented below:

Table 1. Water Savings

Water Applied	**Before EnviroSCAN**	**After EnviroSCAN**	**Savings**
ML/Ha	9	7.5	1.5
Total ML	3150	2625	525
Total Water Cost	$33,075	$27,562.50	$5,512.50

Table 2. Yield Results

Yield Increase	Before EnviroSCAN	After EnviroSCAN	Yield Increase
Bales/Ha	8.0	9.8	1.8
Total Bales	2 800	3430	630
Total Value in $	$1,271,200	$1,557,220	$286,020

(Assuming 1999/2000 average of $454/bale)

Conclusion

Many cotton growers' investment in EnviroSCAN® has contributed significantly to their success in relation to return, water savings and increased yield.

Based on these results, many cotton growers interviewed believe that "EnviroSCAN ® is miles ahead of other technologies because it delivers a continuous picture of soil moisture."

Telemetry options available with EnviroSCAN® which enable remote downloading of data utilising a radio, phone or modem may also prove useful.

Overall, the use of EnviroSCAN® has become an integral part of many cotton farms across Australia. The associated increase in returns and reductions in water use and labour have ensured the effort the growers have contributed has been returned several time's over.

Reference List

Australian Bureau of Agricultural and Resource Economics (ABARE) *The Australian Cottongrower Cotton Year Book*, 2000