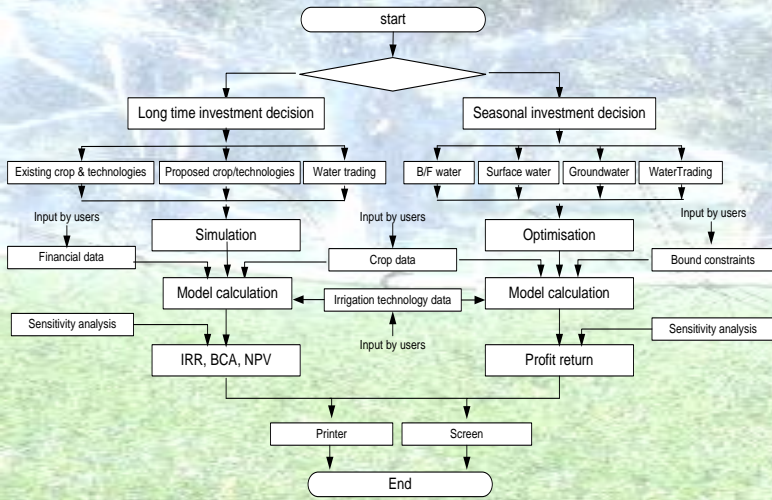


Model objectives:

- (i) assist long term investment decision making by determining the benefit and costs of modern irrigation technology under different cropping patterns and water trading scenarios
- (ii) assist seasonal investment decision making for maximising net return by determining the optimal responses under given season allocations and water trading scenario

Model implementation:

- standalone program under Windows operating system
- crop parameters including land use, water use, price and cost can be set by users
- Irrigation technology parameters for different crops can be set by users
- crop and irrigation technology parameters can also be set separately
- sensitivity analysis can be completed with as many as variables
- model run results can be displayed on screen and printed on paper as well



1. Screen shoots of WaterWorks on crop and irrigation technology parameter setting

(i)

(ii)

(iii)

(iv)

(i) start screen (ii) crop variable costs and gross margin (iii) drip irrigation cost detail setting (iv) pivot irrigation cost detail setting

2. Screen shoots of WaterWorks on long time investment simulation

(i)

(ii)

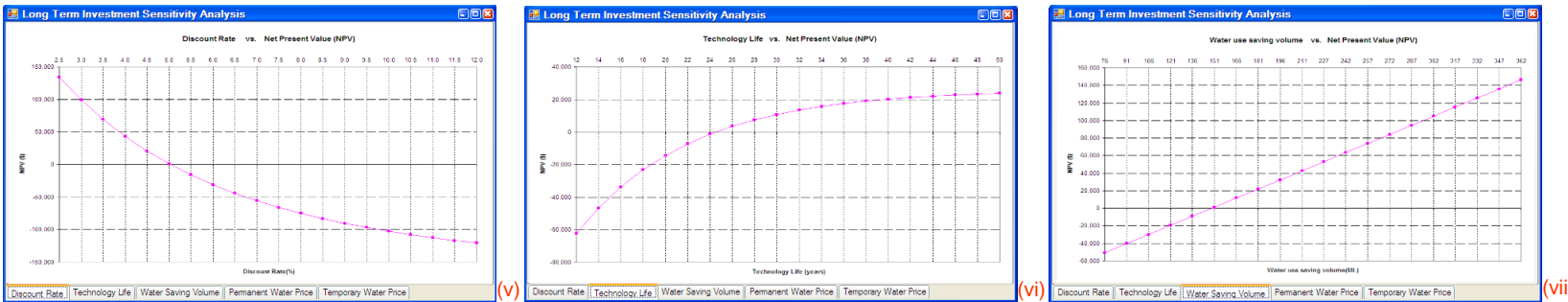
(iii)

(iv)

Simulation result report 001
Time of result completion: 24/07/2008 11:39:26 AM
Farmer Name: 1, Farmer ID: 1, Period from 2006 to 2007, RunID:001
Actual farm area(Existing): 100.0 Hectares
Actual farm area(Proposed): 100.0 Hectares
Water saving with new technology: 151.0 Mega Litres.

Existing crops:
Crop 1: Name: Maize | Area(Ha): 100 | Technology: Surface | Soil: Transitional red-brown earth | Water use(ML/Ha): 7.15 | Water use(ML): 715.00 | Gross income(\$/Ha): 100.00 | Gross income(\$): 10000.00 | Variable cost(\$/Ha): 118.00 | Variable cost(\$): 11800.00 | Gross Margin(\$/Ha): 682.00 | Gross Margin(\$): 68200.00

Proposed crops:
Crop 1: Name: Cotton | Area(Ha): 80 | Technology: Drip irrigation | Soil: Self-mulching clay | Water use(ML/Ha): 5.70 | Water use(ML): 456.00 | Gross income(\$/Ha): 387.00 | Gross income(\$): 30960.00 | Variable cost(\$/Ha): 248.00 | Variable cost(\$): 19840.00 | Gross Margin(\$/Ha): 139.00 | Gross Margin(\$): 11120.00
Crop 2: Name: Soybean | Area(Ha): 20 | Technology: Pivot irrigation | Soil: Self-mulching clay | Water use(ML/Ha): 5.40 | Water use(ML): 108.00 | Gross income(\$/Ha): 503.00 | Gross income(\$): 10060.00 | Variable cost(\$/Ha): 93.15 | Variable cost(\$): 1863.00 | Gross Margin(\$/Ha): 410.00 | Gross Margin(\$): 8200.00



(i) long time investment simulation parameters (ii) (iii) screen outputs of simulation result (iv) printer output of simulation result (v)(vi)(vii) charts of sensitivity analysis

3. Screen shoots of WaterWorks on seasonal investment optimisation

(i)

(ii)

(iii)

Optimisation result report 001
Time of result completion: 24/07/2008 2:58:07 PM
Farmer Name: 1, Farmer ID: 1, Period from 2006 to 2007, RunID:001

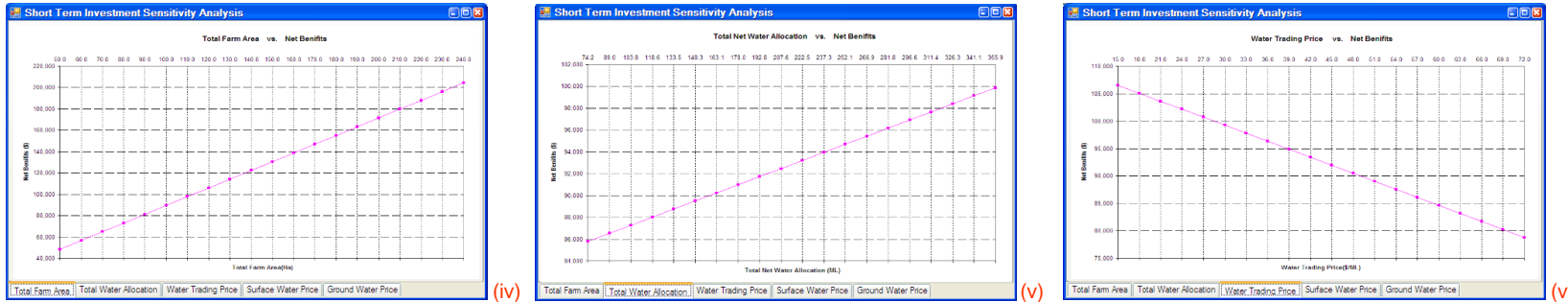
Water trading (Buying): 488 Mega Litres
Water trading price: 50 \$/ML

Total land use: 100 Hectares
Total water use: 636 Mega Litres
Total gross income: 293,615 \$
Total net income: 89,495 \$

Optimisation Details

Crop 3: Name: Cotton | Land use(Ha): 80.0000 | Water use(ML/Ha): 7.0000 | Water use(ML): 560.0000 | Yield(Tonne/Ha): 7 | Total income(\$): 274,400.00 | Total income(\$/Ha): 3,430.00 | Total income(\$/ML): 39,200.00 | Total variable cost(\$): 2,210.00 | Gross margin(\$/Ha): 1,220.00 | Gross margin(\$/ML): 14.00

Crop 5: Name: Sorghum | Land use(Ha): 20.0000 | Water use(ML/Ha): 3.8000 | Water use(ML): 76.0000 | Yield(Tonne/Ha): 8 | Total income(\$): 8,842.11 | Total income(\$/Ha): 442.11 | Total variable cost(\$): 866.00 | Gross margin(\$/Ha): 814.00 | Gross margin(\$/ML): 10.71



(i) optimisation parameters (ii) screen output of optimisation result (iii) printer output of optimisation result (iv)(v)(vi) charts of sensitivity analysis