

**South West Waikato Owner Sys 2**  
**2020-21 Season numbers at a glance**

| KPI's                                    | Budget  | Actual  |
|------------------------------------------|---------|---------|
| Milk Production (kgMS/ha)                | 913     | 936     |
| Milk Production (kgMS/cow)               | 339     | 349     |
| Net Dairy Cash Income (\$/kgMS)          | \$6.54  | \$7.60  |
| Total Farm Working Expenses (\$/kgMS)    | \$3.99  | \$4.25  |
| Cash Operating Surplus/Deficit (\$/kgMS) | \$2.55  | \$3.35  |
| Gross Farm Revenue (\$/kgMS)             | \$6.49  | \$7.54  |
| Operating Expenses (\$/kgMS)             | \$4.11  | \$4.42  |
| Operating Profit (\$/ha)                 | \$2,173 | \$2,916 |

\* These KPI's are based on cash book actuals to the 31/5/2021 and estimated non-cash adjustments. The final financial performance based on financial statements may differ

**Comments**

The financial performance for the 2020-21 season was defined by better than expected production and milk price. Net cash dairy income was 19% up on budget while total farm working expenses were only up 9%.

Operating profit per ha for the season is estimated to be \$2,916, which is 34% up on budget. A major contributing factor to this result is an increase in pasture eaten for the year of 1.3 t DM/ha. This is up 11.7% compared with the 2019-20 season.

The majority of the increase in farm working expenses was due to a 90% increase in repairs and maintenance. With the better than expected payout more discretionary work was carried out, equating to \$0.24/kg MS, with projects including a major upgrade of the vet race and yards at one shed, double glazing 2 houses and clearing willow trees.

In November 2020 the farm signed up to be part of the **Halter** programme. This farm management tool uses solar-powered, GPS-enabled smart collars fitted to each dairy cow and combines with a simple app to allow farmers to remotely shift, virtually fence and proactively monitor their cow's health, feed and behaviour.

This system provides a greater level of information for less physical input than less technical options. To gain the full benefits from this programme effort is still required to interpret and act on the information provided.

Setting the farm up to fully integrate with this programme has taken a lot of the management focus for the latter part of the season. There will be ongoing changes to infrastructure as fences are removed so paddock sizes change from 1.8 ha to 4 ha to optimise land use.

Benefits are already being seen with cows moving a lot more quietly, particularly entering the farm dairy, and the farm owners and staff are looking forward to the first full year with this programme, particularly the additional information that it provides for monitoring cows during calving and mating.

**Other points of interest**

The early part of the season was great favourable weather conditions through winter and calving and with a better calving pattern getting the season off to a good start.

Early gains were eroded later in the spring as it seemed impossible to maintain pasture quality due to early seed head emergence and very high November pasture growth rates. This impacted pasture resulting in feed with lower digestibility and DM%. The situation was further exacerbated with delays in getting supplement off due to contractor unavailability. Production was 7% behind budget by the end of December.

Rainfall in the latter half of the season was much more regular than the previous season and pasture growth rates were well up on the 201920 season. This made up for the earlier losses in the spring and the season finished with 5000 kg MS more than budgeted.

Both herds went to once-a-day milking on the 18th December. 70 Culls went off the farm through February and March and the remaining 539 cows were milked through to May. The last of the herd was dried off mid-May, which is the latest dry off date for the farm for some years.

By May 31st pasture cover was at 2,350 kg DM per ha. 50% of the herd were at body CS of 5 and 50% were at 4.8, so well on track to meet the targets for planned start of calving.

Silage made on the milking area in the spring was at 69 ha or 30% of the farm was nearly double the area made in 2019-20. This was a result of better spring growth rates, but also due to having less area out for growing maize. Maize grown was only 3.7 ha instead of the budgeted 8 ha.

Increased silage making costs were offset by decreased maize growing costs.

Purchased feed costs were down as no hay was purchased. The good winter and spring meant very little of the hay on hand was fed out so there was still sufficient inventory on hand going into the 2021 winter.

Maize purchased was 110 t DM (20 t DM up on budget), however the price was less than budgeted, (\$300 per t DM compared with \$390 per t DM) so total costs was similar

The not in calf rate was 16% which was disappointing as it is higher than the 2019-20 season of 11%. The six week in calf rate is 70% E which is a below target and the lowest for the farm for the last 3 seasons. Some of this poorer performance could be attributed to the poorer pasture quality though November. This will be an area of focus for the 2021-22 season.

Sexed semen was used on the top 20% genetic merit cows for the first time this season. More of the lower genetic merit cows were mated to beef breeds. The aim of this strategy is to ultimately reduce the number of calves bobbied.

Incidences of downer cows as a result of low phosphorous meant the decision was made to use DAP despite soil tests indicating soil phosphate levels were more than adequate.

# Annual Cash Budget

Name: Sth West Waikato Sys 2 Budget Period 1 / 6 / 2020 to 31 / 5 / 2021

Farm Details: 215227 kgMS 617 cows 230.0 ha 349 kgMS/cow 936 kgMS/ha 2.68 cows/ha

| Income                                                                                   |                                    | \$ Total           | \$/kgMS       | \$/cow         | \$/ha          |
|------------------------------------------------------------------------------------------|------------------------------------|--------------------|---------------|----------------|----------------|
| <b>Net Milk Income</b>                                                                   | Share of milk cheque received 100% |                    |               |                |                |
| Milk Solids advance                                                                      | kgMS x \$ /kgMS                    | \$1,282,674        | \$5.96        | \$2,079        | \$5,577        |
| Milk Solids retrospective                                                                | 191,917 kgMS x \$ /kgMs            | \$257,470          | \$1.20        | \$417          | \$1,119        |
| Milk Solids dividend                                                                     | shares x \$ /share                 | \$9,654            | \$0.04        | \$16           | \$42           |
| DairyNZ levy                                                                             | enter as negative number           | -\$12,568          | -\$0.06       | -\$20          | -\$55          |
| Net Dairy livestock sales (calves + culls + other - purchases)                           |                                    |                    | \$0.00        | \$0            | \$0            |
| Other dairy income e.g. farm cottage rent, trading rebates, small amounts of contracting |                                    | \$98,524           | \$0.46        | \$160          | \$428          |
| <b>Net Dairy Cash Income</b>                                                             |                                    | <b>\$1,635,754</b> | <b>\$7.60</b> | <b>\$2,651</b> | <b>\$7,112</b> |
| Expenses                                                                                 |                                    | \$ Total           | \$/kgMs       | \$/cow         | \$/ha          |
| Wages                                                                                    |                                    | \$278,651          | \$1.29        | \$452          | \$1,212        |
| Animal health                                                                            |                                    | \$45,078           | \$0.21        | \$73           | \$196          |
| Breeding and herd improvement                                                            |                                    | \$54,313           | \$0.25        | \$88           | \$236          |
| Farm dairy                                                                               |                                    | \$7,179            | \$0.03        | \$12           | \$31           |
| Electricity (farm dairy, water supply)                                                   |                                    | \$28,114           | \$0.13        | \$46           | \$122          |
| Supplements made (incl. Contractors)                                                     |                                    | \$57,162           | \$0.27        | \$93           | \$249          |
| Supplements purchased                                                                    |                                    | \$39,145           | \$0.18        | \$63           | \$170          |
| Calf rearing                                                                             |                                    | \$13,062           | \$0.06        | \$21           | \$57           |
| Young and dry stock grazing                                                              |                                    | \$88,159           | \$0.41        | \$143          | \$383          |
| Winter cow grazing                                                                       |                                    |                    | \$0.00        | \$0            | \$0            |
| Run-off lease                                                                            |                                    |                    | \$0.00        | \$0            | \$0            |
| Fertiliser (incl. N)                                                                     |                                    | \$59,286           | \$0.28        | \$96           | \$258          |
| Irrigation                                                                               |                                    |                    | \$0.00        | \$0            | \$0            |
| Regrassing and cropping                                                                  |                                    | \$18,627           | \$0.09        | \$30           | \$81           |
| Weed and pest                                                                            |                                    | \$10,289           | \$0.05        | \$17           | \$45           |
| Vehicles and fuel                                                                        |                                    | \$22,923           | \$0.11        | \$37           | \$100          |
| R&M (land, buildings, plant, machinery)                                                  |                                    | \$116,863          | \$0.54        | \$189          | \$508          |
| Freight and general farm expenses                                                        |                                    | \$8,187            | \$0.04        | \$13           | \$36           |
| Administration e.g. accountant, consultant, phone                                        |                                    | \$20,098           | \$0.09        | \$33           | \$87           |
| Insurance                                                                                |                                    | \$17,463           | \$0.08        | \$28           | \$76           |
| ACC                                                                                      |                                    |                    | \$0.00        | \$0            | \$0            |
| Rates                                                                                    |                                    | \$22,901           | \$0.11        | \$37           | \$100          |
| Halter                                                                                   |                                    | \$7,750            | \$0.04        | \$13           | \$34           |
| <b>Total Farm Working Expenses</b>                                                       |                                    | <b>\$915,250</b>   | <b>\$4.25</b> | <b>\$1,483</b> | <b>\$3,979</b> |
| <b>Cash Surplus / Deficit</b>                                                            |                                    | <b>\$720,504</b>   | <b>\$3.35</b> | <b>\$1,168</b> | <b>\$3,133</b> |
| Non Cash adjustments                                                                     |                                    |                    |               |                |                |
| Value of change in livestock numbers                                                     |                                    | -\$12,943          | -\$0.06       | -\$21          | -\$56          |
| Labour adjustment                                                                        |                                    |                    | \$0.00        | \$0            | \$0            |
| Less Feed inventory Adjustment                                                           |                                    | \$13,110           | \$0.06        | \$21           | \$57           |
| Owned support block adjustment                                                           |                                    |                    | \$0.00        | \$0            | \$0            |
| Depreciation                                                                             |                                    | \$50,000           | \$0.23        | \$81           | \$217          |
| <b>Dairy Gross Farm Revenue</b>                                                          |                                    | <b>\$1,622,811</b> | <b>\$7.54</b> | <b>\$2,630</b> | <b>\$7,056</b> |
| <b>Dairy Operating Expenses</b>                                                          |                                    | <b>\$952,140</b>   | <b>\$4.42</b> | <b>\$1,543</b> | <b>\$4,140</b> |
| <b>Dairy Operating Profit</b>                                                            |                                    | <b>\$670,671</b>   | <b>\$3.12</b> | <b>\$1,087</b> | <b>\$2,916</b> |

# Annual Cash Budget

| Name:                                                          |              | South West Waikato Owner Sys 2 |          |                    | Budget Period      |                  |  | 1 / 6 / 2020 to 31 / 5 / 2021 |  |  |
|----------------------------------------------------------------|--------------|--------------------------------|----------|--------------------|--------------------|------------------|--|-------------------------------|--|--|
| <b>Farm Details:</b>                                           |              |                                |          |                    |                    |                  |  |                               |  |  |
| Budget                                                         | 210,000 kgMS | 620 Cows                       | 230.0 ha | 339 kgMS/cow       | 913 kgMS/ha        | 2.70 cows/ha     |  |                               |  |  |
| <b>Farm Details: Actual</b>                                    |              |                                |          |                    |                    |                  |  |                               |  |  |
|                                                                | 215,227 kgMS | 617 cows                       | 230.0 ha | 349 kgMS/cow       | 936 kgMS/ha        | 2.68 cows/ha     |  |                               |  |  |
| <b>Variance (Actual less Budget)</b>                           |              |                                |          |                    |                    |                  |  |                               |  |  |
|                                                                | 5,227 kgMS   | -3 cows                        | ha       | 10 kgMS/cow        | 23 kgMS/ha         | -0.01 cows/ha    |  |                               |  |  |
| <b>Income</b>                                                  |              |                                |          | <b>Budget</b>      | <b>Actual</b>      | <b>Variance</b>  |  |                               |  |  |
| Net Milk Sales                                                 |              |                                |          | \$1,282,300        | \$1,537,230        | \$254,930        |  |                               |  |  |
| Net Dairy livestock sales (calves + culls + other - purchases) |              |                                |          | \$91,000           | \$98,524           | \$7,524          |  |                               |  |  |
| Other dairy cash income                                        |              |                                |          |                    |                    |                  |  |                               |  |  |
|                                                                |              |                                |          |                    |                    |                  |  |                               |  |  |
| <b>Net Dairy Cash Income</b>                                   |              |                                |          | <b>\$1,373,300</b> | <b>\$1,635,754</b> | <b>\$262,454</b> |  |                               |  |  |
| <b>Expenses</b>                                                |              |                                |          |                    |                    |                  |  |                               |  |  |
|                                                                |              |                                |          | <b>Budget</b>      | <b>Actual</b>      | <b>Variance</b>  |  |                               |  |  |
| Wages                                                          |              |                                |          | \$280,000          | \$278,651          | -\$1,349         |  |                               |  |  |
| Animal health                                                  |              |                                |          | \$37,200           | \$45,078           | \$7,878          |  |                               |  |  |
| Breeding and herd improvement                                  |              |                                |          | \$47,900           | \$54,313           | \$6,413          |  |                               |  |  |
| Farm dairy                                                     |              |                                |          | \$7,400            | \$7,179            | -\$221           |  |                               |  |  |
| Electricity (farm dairy, water supply)                         |              |                                |          | \$29,200           | \$28,114           | -\$1,086         |  |                               |  |  |
| Supplements made (incl. Contractors)                           |              |                                |          | \$57,500           | \$57,162           | -\$338           |  |                               |  |  |
| Supplements purchased                                          |              |                                |          | \$44,900           | \$39,145           | -\$5,755         |  |                               |  |  |
| Calf rearing                                                   |              |                                |          | \$13,500           | \$13,062           | -\$438           |  |                               |  |  |
| Young and dry stock grazing                                    |              |                                |          | \$86,000           | \$88,159           | \$2,159          |  |                               |  |  |
| Winter cow grazing                                             |              |                                |          |                    |                    |                  |  |                               |  |  |
| Run-off lease                                                  |              |                                |          |                    |                    |                  |  |                               |  |  |
| Fertiliser (incl. N)                                           |              |                                |          | \$52,800           | \$59,286           | \$6,486          |  |                               |  |  |
| Irrigation                                                     |              |                                |          |                    |                    |                  |  |                               |  |  |
| Regrassing and cropping                                        |              |                                |          | \$18,000           | \$18,627           | \$627            |  |                               |  |  |
| Weed and pest                                                  |              |                                |          | \$9,600            | \$10,289           | \$689            |  |                               |  |  |
| Vehicles and fuel                                              |              |                                |          | \$19,600           | \$22,923           | \$3,323          |  |                               |  |  |
| R&M (land, buildings, plant, machinery)                        |              |                                |          | \$64,800           | \$116,863          | \$52,063         |  |                               |  |  |
| Freight and general farm expenses                              |              |                                |          | \$7,700            | \$8,187            | \$487            |  |                               |  |  |
| Administration e.g. accountant, consultant, phone              |              |                                |          | \$19,500           | \$20,098           | \$598            |  |                               |  |  |
| Insurance                                                      |              |                                |          | \$17,000           | \$17,463           | \$463            |  |                               |  |  |
| ACC                                                            |              |                                |          |                    |                    |                  |  |                               |  |  |
| Rates                                                          |              |                                |          | \$25,750           | \$22,901           | -\$2,849         |  |                               |  |  |
| Halter programme                                               |              |                                |          |                    | \$7,750            | \$7,750          |  |                               |  |  |
| <b>Total Farm Working Expenses</b>                             |              |                                |          | <b>\$838,350</b>   | <b>\$915,250</b>   | <b>\$76,900</b>  |  |                               |  |  |
| <b>Cash Operating Surplus / Deficit</b>                        |              |                                |          | <b>\$534,950</b>   | <b>720,504</b>     | <b>\$185,554</b> |  |                               |  |  |
| <b>Non Cash Adjustments</b>                                    |              |                                |          |                    |                    |                  |  |                               |  |  |
|                                                                |              |                                |          | <b>Budget</b>      | <b>Actual</b>      | <b>Variance</b>  |  |                               |  |  |
| Value of change in livestock numbers                           |              |                                |          | -\$10,500          | -12,943            | -2,443           |  |                               |  |  |
| Labour adjustment                                              |              |                                |          |                    |                    |                  |  |                               |  |  |
| Less Feed inventory Adjustment                                 |              |                                |          | \$15,260           | 13,110             | -2,150           |  |                               |  |  |
| Owned support block adjustment                                 |              |                                |          |                    |                    |                  |  |                               |  |  |
| Depreciation                                                   |              |                                |          | \$40,000           | 50,000             | 10,000           |  |                               |  |  |
|                                                                |              |                                |          |                    |                    |                  |  |                               |  |  |
| <b>Dairy Gross Farm Revenue</b>                                |              |                                |          | <b>\$1,362,800</b> | <b>\$1,622,811</b> | <b>\$260,011</b> |  |                               |  |  |
| <b>Dairy Operating Expenses</b>                                |              |                                |          | <b>\$863,090</b>   | <b>\$952,140</b>   | <b>\$89,050</b>  |  |                               |  |  |
| <b>Dairy Operating Profit</b>                                  |              |                                |          | <b>\$499,710</b>   | <b>\$670,671</b>   | <b>\$170,961</b> |  |                               |  |  |
| <b>Dairy Operating Profit/ha</b>                               |              |                                |          | <b>\$2,173</b>     | <b>\$2,916</b>     | <b>\$743</b>     |  |                               |  |  |

## Commentary re variance

|                                                                | Actual to Budget<br>Variance |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|----------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Milksolids                                                     | 5,227                        | Finished the season 2% above budget. The early part of the season was great with a better calving pattern and favourable weather conditions through winter and calving. It seemed impossible to maintain pasture quality later in the spring due to early seed head emergence and very high November pasture growth rates which resulted in pasture with lower digestibility and DM%. The situation was further exacerbated with delays in getting supplement off due to contractor unavailability. Autumn rainfall and pasture growth rates were better and made up for the losses in late spring. |
| Cows                                                           | -3                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Hectares                                                       | 0                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Net Milk Income                                                | 254930                       | Milk price and production were up on budget. Milk production was up 5228 kg MS, (2%), and milk price was \$1.03/kg SM. (\$6.11 compared with actual received of \$7.14/kg MS).                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Net Dairy livestock sales (calves + culls + other - purchases) | 7524                         | Cow prices were about \$50 per head up on budget                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Other dairy income                                             | 0                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### Net Dairy Cash Income

262454

### Expenses

|                                        |       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Wages                                  | -1349 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Animal health                          | 7878  | Having two sheds means that when supplies are replenished products have to be purchased in double quantities. This year had to buy two drums of teat spray which were not in the budget. This will last for most of next season as well. Also increased magnesium supplementation with magsulphate in the water supply as well as causmag on pasture to ensure sufficient intakes for the cows. Extra was also spent on getting the mineral mixes for the maize silage professionally mixed and supplied. |
| Breeding and herd improvement          | 6413  | Used sexed semen this season on the top 20% of the herd based on genetic merit which was not in the budget. The aim is to reduce the number of bobby calves.                                                                                                                                                                                                                                                                                                                                              |
| Farm dairy                             | -221  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Electricity (farm dairy, water supply) | -1086 | Went to once-a-day milking December 18th.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Supplements made (incl. Contractors)   | -338  | Grew 50% less maize for silage, (3.7 ha instead of 8), so maize costs were down \$15,000. Good spring growth meant double the amount of silage was made with costs up \$15,000.                                                                                                                                                                                                                                                                                                                           |
| Supplements purchased                  | -5755 | Didn't need to buy any hay as the good winter and early spring meant most of the hay on hand was not used. The maize purchased was also less than budget. Bought 110 t DM for \$320 per t DM compared with the budget of 90 t DM at \$390 per t DM.                                                                                                                                                                                                                                                       |
| Calf rearing                           | -438  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Young and dry stock grazing            | 2159  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Winter cow grazing                     | 0     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                                                   |       |                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------|-------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Run-off lease                                     | 0     |                                                                                                                                                                                                                                                                                                                                                                 |
| Fertiliser (incl. N)                              | 6486  | Used more DAP than budgeted to increase the amount of phosphate applied. Despite soil tests indicating Olsen P results being above required levels, there were incidences with downer cows during calving due to low blood phosphate levels. N use was up 17 kg N/ha to about 57 kg N/ ha across the whole farm. In part due to applying more N to crops grown. |
| Irrigation                                        | 0     |                                                                                                                                                                                                                                                                                                                                                                 |
| Regrassing and cropping                           | 627   |                                                                                                                                                                                                                                                                                                                                                                 |
| Weed and pest                                     | 689   |                                                                                                                                                                                                                                                                                                                                                                 |
| Vehicles and fuel                                 | 3323  | Fuel & oil was up \$2000, in part due to doing less contracting used for pasture renovation as can now do own regrassing with the purchase of a new air seeder.                                                                                                                                                                                                 |
| R&M (land, buildings, plant, machinery)           | 52063 | With the better payout more projects were undertaken including a major upgrade of the vet race and yards at one of the sheds (\$20,000), clearing of willow trees, (\$10,000) and double glazing two of the farm houses, (\$15,000).                                                                                                                            |
| Freight and general farm expenses                 | 487   |                                                                                                                                                                                                                                                                                                                                                                 |
| Administration e.g. accountant, consultant, phone | 598   |                                                                                                                                                                                                                                                                                                                                                                 |
| Insurance                                         | 463   |                                                                                                                                                                                                                                                                                                                                                                 |
| ACC                                               | 0     |                                                                                                                                                                                                                                                                                                                                                                 |
| Rates                                             | -2849 | Had over budgeted based on prior years which still included extra relating to the final boundary realignments from purchasing the new farm 2 years earlier.                                                                                                                                                                                                     |
| Halter programme                                  | 7750  | Started with the Halter programme in November. Both farms were fully integrated by February 2021.                                                                                                                                                                                                                                                               |

|                                    |              |  |
|------------------------------------|--------------|--|
| <b>Total Farm Working Expenses</b> | <b>76900</b> |  |
|------------------------------------|--------------|--|

### Non Cash adjustments

|                                      |       |                                                                                                                                                                                                                                                                            |
|--------------------------------------|-------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Value of change in livestock numbers | -2443 | Finished the year with 16 more R 1 heifers than budgeted but 11 less MA cows/R 2 heifers. Since the MA cows and heifers are valued at higher levels than the R 1 heifers, the total decrease in value of livestock due to change in numbers is a bit higher than budgeted. |
| Labour adjustment                    | 0     |                                                                                                                                                                                                                                                                            |
| Less Feed inventory Adjustment       | -2150 | The season ended with 43.7 t DM more on hand than at the start. This is just a little less than was budgeted to be on hand at the end of the season. The increase is silage left that was made in the spring                                                               |
| Owned support block adjustment       | 0     |                                                                                                                                                                                                                                                                            |
| Depreciation                         | 10000 | Expect to have higher depreciation than budgeted due to upgrades of vehicles and some infrastructure.                                                                                                                                                                      |