II. FORMULAS USED

CHAPTER 2

[2.1] Depreciation = $\frac{\text{Purchase price - Salvage value}}{\text{Economic life}}$

[2.2] Interest = Rate x $\frac{\text{(Purchase price + Salvage value)}}{2}$

[2.3] Taxes, Insurance & Housing = 0.01 x current list price

[2.4] Total fixed cost = Depreciation + Interest + Taxes, Insurance & Housing

[2.5] Lubrication cost = 0.15 x Fuel cost

[2.6] Total variable Cost = Repairs and maintenance + Fuel + Lubrication + Labor

[2.7] Total Cost = Total Fixed Cost + Total Variable Cost

CHAPTER 4

[4.1] Area(ha) x 1000 = Speed(km/h) x Time(hrs) x Width(m) x Field Efficiency(%)

[4.2] Field Efficiency(%) = $\frac{\text{Area(ha) x 1000}}{\text{Speed(km/h) x Time(hrs) x Width(m)}}$

[4.3] Width(m) = $\frac{\text{Area(ha) x 1000}}{\text{Speed(km/h) x Time(hrs) x Field Efficiency(\%)}}$

[4.4] 1 kN = 102 kgf = 225 pounds force

[4.5] Draft(kgf/m) = $\frac{\text{Draft per tine(kgf) x 1000}}{\text{Row spacing(mm)}}$

[4.6] Drawbar Power(kW) = $\frac{\text{Draft(kgf/m) x Implement width(m) x Speed(km/h)}}{367}$

[4.7] PTO Power (kW) = $\frac{\text{Drawbar power(kW)}}{\text{Conversion factor x 0.8}}$

CHAPTER 5

[5.1] Theoretical field capacity(ha/h) = $\frac{\text{Speed(km/h) x Width(m)}}{10}$

[5.2] Speed(km/h) = $\frac{36}{\text{Seconds to travel 10 meters}}$

[5.3] Field efficiency(%) = $\frac{\text{Effective field capacity(ha/h) x 100}}{\text{Theoretical field capacity(ha/h)}}$

[5.4] Effective field capacity = Theoretical field capacity x Field efficiency
= $\frac{\text{Width(m) x Speed(km/h)}}{10}$ x $\frac{\text{Field efficiency(\%)}}{100}$

CHAPTER 7

[7.1] $C'=1/F(R_1/L_1 + R_2/L_2 + - - - - R_n/L_n)$

[7.2] C" = C' / (Accumulated hours) x 1 000

[7.3] $C'' = mH^d$

[7.4] $C =F \times m \times H^d \times L$

[7.5] $C2 = F \times m \times H_1^{(d-1)} \times L$

[7.6] $F = f_a \times f_b \times \ldots$
as applicable according to the listed conditions deviating from the ideal situation conducive to good maintenance.

CHAPTER 8

[8.1] $\text{Inflation} = (PPI_n \div PPI_{n-1}) - 1$

[8.2] $CLP_n = CLP_m \times \frac{PPI_n}{PPI_m}$

[8.3] $RVP_n = RVP1_n = dep1 \times dep2^{AGEn}$
if $AGE_n \geq 1$, and 0.85 if $AGE_n < 1$;

[8.4] $MV_n = CLP_n \times RVP_n$

[8.5] $RVP_n = RVP2_n = [a+(b \times (AGE_n)^c)+(d \times (HPY_n)^e)]^f$,
if $AGE_n \geq 1$ and 0.85 if $AGE_n < 1$

[8.6] $PUR_n = MV_n$; if n = begin else 0

[8.7] SELL = MV ; if n = end else 0

CHAPTER 10

[10.1] $RC_n = \frac{(PP-(RV_n \text{ x} PVF_n)+((1-(MTR/100))\text{x}TRC_n)-((MTR/100)\text{x}TD_n))}{(1-DF_n)}$

CHAPTER 11

[11.1] $PMT = PV \text{ x } \frac{(1+i)^n \text{ x } i}{(1+i)^n - 1}$

[11.2] $PMT_x = \frac{PV}{n} + PV_x \text{ x } i^x$

[11.3] $PMT_{1 \text{ to } n-1} = PV \text{ x } i$
$PMT_n = (PV \text{ x } i) + PV$