Farm Machinery Syndicates
E. L. Hagen
Farm Management Studies 3
Inflation of farm costs recently has been crippling, and a component of these costs of particular importance in some farming systems relates to machinery. This bulletin examines the feasibility of a group of farmers sharing a major item of machinery in an attempt to reduce costs.

There is no point in being starry eyed about machinery sharing agreements. There have been too many futile ones. But that they can be made to work has been demonstrated elsewhere. If we want the family farm to survive we may have to look much harder at these possibilities. The Department is now widening the scope of its research in this field.

Thanks are due to the farmers who co-operated in this preliminary study.

J.D. STEWART
Professor of Farm Management
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1. INTRODUCTION

Current economic conditions are forcing a number of farmers to re-appraise their programmes of machinery replacement. Historically plant has been a significant component of Total Farm Capital on many New Zealand farms, particularly those involved with cropping. Recent substantial increases in the purchasing price of all items of farm machinery have meant that normal depreciation reserves are no longer capable of financing the replacement of major items of plant. The small farmer particularly is faced with this problem, and due to low usage rates and consequent high overhead costs, many large items of agricultural equipment are beyond his resources. In addition, wage inflation has encouraged the substitution of capital for labour.

An existing alternative to the purchase of machinery is the use of contract services, but farmers find this a costly alternative for some types of operation. Additionally where timeliness is important, they may be reluctant to rely heavily on outside operators.

A second alternative which is gaining popularity overseas is machinery syndication. Where the purchase and sole use of a large machine is clearly uneconomic for individuals a group of farmers combining to purchase the same machine may derive the benefit of a new and technologically advanced machine at acceptable costs.

1.1 The Types of Machinery Syndicates

Syndicates can be classified into two basic types.

(a) Hire Syndicates:

This type of syndicate involves each member buying one item of plant and hiring it to the other members of the group. The advantage of this form of syndicate is that it releases capital which would otherwise be tied up in small items of plant with low usage rates. The principal disadvantage is in deciding the rate at which the item of plant is hired to members of the syndicate.

(b) Group Ownership Syndicates:

In these syndicates the machine is purchased jointly by a group of farmers, each contributing a proportion of the purchase price. The advantage is that small farms can have access to large and modern machinery at relatively low cost.

The present study is principally concerned with an example of this type of syndicate and the case study described investigated the possibility of a group of sheep farmers on the Canterbury Plains jointly purchasing a large tractor for their heavy cultivation work.

1.2 Overseas Syndicates

Two countries in which machinery syndication has been publicised are England and Canada.
1.2.1 English Syndicates:

The first syndicates were established in Hampshire in 1955 and by 1964 there were over 600 syndicates throughout the British Isles.

An outstanding feature of these syndicates is the provision of special credit facilities for their members. The individual syndicates are administered by a parent company, Syndicate Credits Limited, whose function is to arrange the credit facilities for member syndicates with the trading bank, as well as to assist with their general organisation and administration.

Credit is arranged by Syndicate Credits Limited with a trading bank at a fixed rate of interest. The parent company then lends the money to the individual syndicates at a slightly higher rate to cover administrative expenses. This arrangement ensures that credit is always available.

The English syndicates are operated under two sets of “rules.” These are the Machinery Syndicate Rules, which define the objectives and policy of a particular syndicate, and the Local Rules which govern its organisation and operation.

(See Appendices A and B)

1.2.2 Canadian Syndicates:

The Canadian syndicates are run on similar lines to their English counterparts with the exception that the credit facilities are administered by a government agency under the Farm Machinery Syndicates Credit Act 1964.

1.3 Problems Associated with Machinery Syndicates

Farmers often associate a number of difficulties with the sharing of machinery. The most important of these are set out below.

1.3.1 Machine Maintenance:

Many farmers feel that by sharing a machine the general standard of maintenance will decline causing increased repair and depreciation costs. English syndicates overcome this problem by—

(i) making provision in the syndicate local rules for the primary responsibility for the maintenance of the machine to be allocated to one member.

(ii) ensuring that the machine is operated by a competent person.

(iii) requiring the periodic inspection of each machine by a qualified agricultural engineer to confirm a satisfactory standard of maintenance.

1.3.2 Timing of Work:

The availability of the machine is often the major concern of farmers contemplating syndication. This is only a significant problem in “time dependent” operations such as harvesting where the timing of the operation is critical.

The key to this problem is to ensure that the work load of the machine is not excessive and that members’ needs can be adequately served with due allowance for lost time. In English Syndicates provision is usually made in the
local rules for a roster system, though experience has shown that with the co-operation of syndicate members the roster rarely has to be enforced.

1.3.3. The Risk of Disagreement:
This is minimised by the selection of compatible members. In addition, a well drawn set of rules ensures that minor difficulties are quickly resolved.

1.3.4. Loss of Independence:
The loss of independence felt by syndicate members is a function of the degree of co-operation between members. The experience of English farmers indicates that, provided the number of syndicate members is limited, loss of independence is not a serious difficulty.

Traditionally the New Zealand farmer has always been independent in outlook, but with current economic trends independence may have a real cost which he can no longer afford.

1.4 Machinery Syndicates in New Zealand

There are few formal syndicates in New Zealand, though many family groups and close neighbours share both facilities and machinery. Recently however there has been a trend to a more formalised type of asset sharing agreement, such as the large scale breeding schemes, and establishment of communal milking facilities by groups of dairy farmers.

At present the New Zealand Government has no fixed policy on machinery syndicates, but it has been influenced by the Report of the Finance Working Party of the 1964 Agricultural Development Conference. The Working Party foresaw that the major difficulties of machinery syndicates would be

(i) Inability of farmers to determine the priority of use of the syndicate machine, and

(ii) inability to achieve a fair apportionment of costs between syndicate members.

It also feared that machinery syndicates would undercut the existing independent agricultural contractors. As a result of the Working Party's recommendation the Agricultural Development Conference did not favour machinery syndicates.

The experience of overseas syndicates however does not support these objections.

Recently the Southland Branch of Federated Farmers has been interested in the introduction of special credit facilities for syndicates, similar to the scheme currently operating in England. In addition one trading bank has expressed unofficial interest in the possibility of extending special credit facilities to groups of farmers interested in machinery syndication.

Unless the New Zealand farmer is markedly different from his English counterpart, the type of machinery syndicates currently operating successfully in the
United Kingdom must be practicable in New Zealand. There are some problems always associated with co-operative enterprises, but English experience shows that with goodwill between members reinforced by well drawn rules, these difficulties can be largely eliminated.

2. CASE STUDY

The case study was concerned with four farmers on the “light plains” of Canterbury who were considering investing in a large tractor to carry out the heavier cultivation work on their farms. Most of this cultivation is for growing supplementary greenfeeds and for the establishment of new pasture and lucerne.

All four farms have a marginal labour unit problem and are operating under a capital constraint. Since most of this cultivation is carried out between August and February, when labour demands on these farms are at a peak, the syndication of a large tractor is a potential method of reducing the pressure on the existing labour.

2.1 The Tractors and Their Estimated Usage Rates

2.1.1. The Tractors:

The present tractors owned by the prospective syndicate members are as follows—

- Farmer A: 70h.p. tractor
- Farmer B: 70h.p. tractor
- Farmer C: 60h.p. tractor
- Farmer D: 50h.p. tractor

The proposal was a syndicate tractor in the 100 - 120h.p. range. Two were selected for evaluation each at the limit of the desired horsepower range, in order to give an indication of the optimum size of tractor for this syndicate. There is no developed second-hand market for this size of tractor and furthermore the farmers’ preference was for new machines. It was therefore decided to investigate only new tractors.

2.1.2. Estimated Usage Rate of the Tractors:

The speed of the basic cultivation practices can be estimated from the following formula—

\[
\text{Effective Work Capacity (E.W.C.)} = \text{Width of Imp. (ft.)} \times \text{Speed (m.p.h.)} \\
\text{(Acres per hour)}
\]

Assuming a 17.5\% allowance for waste time, the E.W.C.’s of the present and proposed syndicate tractors were calculated. Results are shown in Table 2.1 below.
### TABLE 2.1

<table>
<thead>
<tr>
<th>Horse Power of Tractor</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>100</th>
<th>120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width of Implement</td>
<td>8'</td>
<td>10'</td>
<td>10'</td>
<td>14'</td>
<td>14'</td>
</tr>
<tr>
<td>Speed of Cultivation (m.p.h.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chisel Ploughing</td>
<td>6</td>
<td>5</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Harrowing and Rolling</td>
<td>7</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>9</td>
</tr>
<tr>
<td>Rolling alone</td>
<td>9</td>
<td>7</td>
<td>9</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>E.W.C. acres/hour</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chisel Ploughing</td>
<td>4.8</td>
<td>5.0</td>
<td>6.0</td>
<td>8.4</td>
<td>9.8</td>
</tr>
<tr>
<td>Harrowing and Rolling</td>
<td>5.6</td>
<td>6.0</td>
<td>7.0</td>
<td>11.2</td>
<td>12.6</td>
</tr>
<tr>
<td>Rolling alone</td>
<td>7.2</td>
<td>7.0</td>
<td>9.0</td>
<td>14.0</td>
<td>15.4</td>
</tr>
</tbody>
</table>

The speeds of operation for the various tractors were derived from farmer and dealer estimates.

The basic cultivation techniques, derived in consultation with the four farmers, for the renewal of pastures and the sowing of supplementary feed crops are set out in Table 2.2, including per acre time estimates for the various tractors.

### TABLE 2.2

<table>
<thead>
<tr>
<th>Pasture— Supplementary Feed or Crop:</th>
<th>50h.p.</th>
<th>60h.p.</th>
<th>70h.p.</th>
<th>100h.p.</th>
<th>120h.p.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>hrs</td>
<td>hrs</td>
<td>hrs</td>
<td>hrs</td>
<td>hrs</td>
</tr>
<tr>
<td>3 Chisel Ploughings</td>
<td>0.625</td>
<td>0.60</td>
<td>0.50</td>
<td>0.238*</td>
<td>0.204*</td>
</tr>
<tr>
<td>2 Chisel Ploughings and Harrow</td>
<td>0.417</td>
<td>0.40</td>
<td>0.334</td>
<td>0.238</td>
<td>0.204</td>
</tr>
<tr>
<td>1 Harrowing and Rolling</td>
<td>0.179</td>
<td>0.167</td>
<td>0.143</td>
<td>0.089</td>
<td>0.079</td>
</tr>
<tr>
<td>1 Rolling</td>
<td>0.139</td>
<td>0.143</td>
<td>0.111</td>
<td>0.07</td>
<td>0.065</td>
</tr>
<tr>
<td>Total Hours/Acre</td>
<td>1.36</td>
<td>1.31</td>
<td>1.088</td>
<td>0.635</td>
<td>0.552</td>
</tr>
</tbody>
</table>

Supplementary Feed— Pasture or New Lucerne:

<table>
<thead>
<tr>
<th></th>
<th>hrs</th>
<th>hrs</th>
<th>hrs</th>
<th>hrs</th>
<th>hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Chisel Ploughings</td>
<td>0.834</td>
<td>0.80</td>
<td>0.667</td>
<td>0.357**</td>
<td>0.306**</td>
</tr>
<tr>
<td>1 Harrowing and Rolling</td>
<td>0.179</td>
<td>0.167</td>
<td>0.143</td>
<td>0.089</td>
<td>0.079</td>
</tr>
<tr>
<td>1 Rolling</td>
<td>0.139</td>
<td>0.143</td>
<td>0.111</td>
<td>0.070</td>
<td>0.065</td>
</tr>
<tr>
<td>Total Hours/Acre</td>
<td>1.152</td>
<td>1.11</td>
<td>0.92</td>
<td>0.516</td>
<td>0.45</td>
</tr>
</tbody>
</table>

* Reduced to two chisel ploughings
** Reduced to three chisel ploughings
(These reductions have been made to take account of the improver penetration and tillage obtained with the larger plant.)

With these per acre estimates of the time taken for cultivation, the total estimated yearly usage rate in hours can be derived from the four farmers’ expected cultivation acreages. In addition, it has been assumed that each member would use the syndicate tractor for a number of hours additional to the above. The estimated total usage rate has been summarised in Table 2.3 below.

<table>
<thead>
<tr>
<th></th>
<th>100h.p.</th>
<th></th>
<th>120h.p.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hours</td>
<td>% of Total</td>
<td>Hours</td>
<td>% of Total</td>
</tr>
<tr>
<td>Farmer A</td>
<td>155</td>
<td>16%</td>
<td>146</td>
<td>18%</td>
</tr>
<tr>
<td>Farmer B</td>
<td>274</td>
<td>28%</td>
<td>221</td>
<td>27%</td>
</tr>
<tr>
<td>Farmer C</td>
<td>331</td>
<td>34%</td>
<td>268</td>
<td>34%</td>
</tr>
<tr>
<td>Farmer D</td>
<td>216</td>
<td>22%</td>
<td>174</td>
<td>21%</td>
</tr>
<tr>
<td>Total Estimated Usage</td>
<td>976</td>
<td>100%</td>
<td>809</td>
<td>100%</td>
</tr>
</tbody>
</table>

Another important consideration in the estimation of total usage is the work load of the tractor in any one period. The work load should allow a margin for lost time due to bad weather and breakdowns. Table 2.4 shows the distribution of the work load for the 100h.p. tractor.

<table>
<thead>
<tr>
<th></th>
<th>August-September</th>
<th>October-November</th>
<th>December-February</th>
</tr>
</thead>
<tbody>
<tr>
<td>Availability*</td>
<td>520 hours</td>
<td>520 hours</td>
<td>780 hours</td>
</tr>
<tr>
<td>Demand</td>
<td>160 hours</td>
<td>75 hours</td>
<td>671 hours</td>
</tr>
<tr>
<td>Surplus</td>
<td>360 hours</td>
<td>445 hours</td>
<td>109 hours</td>
</tr>
</tbody>
</table>

* The tractor is assumed to be available 60 hours per week.

2.2 The Organisation of the Syndicate

2.2.1. Ownership:

Most of the present New Zealand syndicates are run under a “gentleman’s agreement.” Where a syndicate is investing in large items of high cost machinery a more legally binding agreement is clearly desirable.

In the U.K. the normal form of syndicate organisation is a partnership. This however has the major disadvantage of conferring unlimited liability on the partners. Additionally partnership agreements are cumbersome, and in the event
of a partner’s death or retirement the partnership must be dissolved and then reconstituted.

For the present study it was decided to adopt a private company form of ownership, for three principal reasons.

(i) The limited liability of syndicate members (the shareholders).
(ii) The separateness of entity—the syndicate exists as a separate entity, enabling easier accounting and administration.
(iii) Little difficulty occurs when a new member wishes to join or an existing member wishes to withdraw. This is achieved through the creation or transfer of shares.

At present there are no tax advantages in company ownership, but since the syndicate is essentially non-profit making this is of minor importance.

2.2.2. Labour:
The cast study tractor has a peak work load from August to February. There are three alternatives open to the syndicate for the provision of a tractor driver.

(i) The machine is driven by each member on his own property.
(ii) An operator is hired from August to February.
(iii) A full-time operator is hired.

The first alternative is undesirable due to the high labour demands on members’ farms over this period. Furthermore, if a driver is employed, no accusations of negligence can be levelled against individual members in the event of a breakdown. A driver will also provide greater continuity of servicing and maintenance than if the tractor was operated by syndicate members.

However reliable part-time drivers are hard to obtain and all four case study farmers expressed interest in employing a full-time driver, particularly as this opened up possibilities of establishing a labour pool in conjunction with the machinery syndicate. Therefore for the purposes of this case study it was decided to employ a full-time operator.

2.2.3. Possible Operation “Rules”:
The organisation of a syndicate will depend to a large extent on the particular syndicate. Where relevant, the English examples (see Appendices A and B) can be used as a guideline.

Set out below are some possible rules for the case study syndicate.

(i) The contribution to the capital cost of the tractor made by each member should be in proportion to his estimated yearly usage.
(ii) At the commencement of each year members should be required to make an advance payment to the company to cover initial costs each year.
(iii) The tractor should be insured and adequate storage provided.
(iv) The company should open a bank account, cheques to be signed by two members.
(v) A roster system should be agreed upon by the members.
(vi) Fuel should be provided by each member, the tractor leaving each farm with a full fuel tank. Oil and grease should be kept at the storage point and the cost met by the syndicate as a whole.
(vii) The company should negotiate an agreement with a tractor servicing firm to undertake any major repairs and periodically inspect the tractor. Minor repairs and servicing should be carried out by the operator.
(viii) A log book should be kept by the operator giving details of hours worked members’ farms.
(ix) Payment of hire charges should be at the end of each month.
(x) Disputes should be resolved by a meeting of members or failing that by an independent arbitrator appointed by the members.

The ownership, labour and operational rules should be specific to each syndicate and must be decided upon by the members of the proposed syndicate. The case study suggestions give some idea of the factors that must be considered when establishing a syndicate.

2.3 Finance of Syndicate Members

Since special credit facilities similar to those in operation overseas are currently not available in New Zealand, prospective syndicate members must examine more conventional sources of finance.

Bearing in mind the capital constraint on the case study farmers, four alternative financing methods were evaluated. These were as follows:
(i) Debt Finance A—
Borrowing based on the tractor as sole security. The maximum loan would be 70% of the resale value of the tractor. Repayment of debt finance is usually by a table mortgage for five years at an interest rate of 7% per annum.
(ii) Debt Finance B:
Borrowing 100% on the tractor, other assets being used as security for the loan. Repayment is again by a table mortgage at 7% per annum.
(iii) Leasing:
Leasing of industrial machinery is now an established practice in New Zealand, but only recently have the possibilities of lease arrangements for farm machinery been explored. Leasing involves the payment of a monthly charge to a finance company for the use of the machine over its economic life. Ownership of the machine never passes to the farmer. Lease periods are usually set at a maximum of five years and the current interest rate is 8½% flat or 16% true. (See Appendix C for derivation of the “true” interest rate from the flat interest rate.) An example of the calculation of a lease instalment is shown in Appendix D.
(iv) Hire Purchase:

Most hire purchase agreements require a deposit of one-third of the purchase price. Repayment is by monthly instalments of principal plus interest on the full amount of the initial loan. The current term is three years and the yearly interest rate is 7% flat or 14% true (see Appendix C).

2.3.1. Comparison of Methods of Finance:

The choice of a financing method will be dependent on capital and cost considerations.

Where the pattern of cash payments differs both in size and timing it becomes important to take account of these time differences. The normal way of doing this is to discount the cash flows involved. This procedure allows any streams of future cash payments to be compared on a present value basis. The important consideration in this exercise is the rate of discount to be used. Where capital is limiting it is normal to use the rate of interest which could be earned if the capital was invested in its best alternative use.

The discounting procedure used to evaluate the four alternative methods of syndicate finance outlined above was the Discounted Cash Flow method (D.C.F.). The procedure for the 100h.p. tractor is illustrated below.

Assumptions:

(1) Purchase price is $9,100 (with cab).
(2) Replacement period, and hence the financing period, is five years.
(3) The tax rate is 0%. (Syndicate is non-profit making).
(4) The four farmers average opportunity cost of capital is 10%.

(i) Debt Plan A:

<table>
<thead>
<tr>
<th>Year</th>
<th>Deposit</th>
<th>Principal</th>
<th>Interest</th>
<th>Sale Price</th>
<th>Cash Flow</th>
<th>D.C.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>7,588</td>
<td></td>
<td></td>
<td>7,588</td>
<td>7,588</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>264</td>
<td>105</td>
<td>369</td>
<td>336</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>282</td>
<td>87</td>
<td>369</td>
<td>305</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>302</td>
<td>67</td>
<td>369</td>
<td>277</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>323</td>
<td>46</td>
<td>369</td>
<td>252</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>344</td>
<td>25</td>
<td>(2,714)</td>
<td>(2,345)</td>
<td>(1,456)</td>
</tr>
</tbody>
</table>

Present Value Cost $7,302
(ii) Debt Plan B:

<table>
<thead>
<tr>
<th>Year</th>
<th>Principal</th>
<th>Interest</th>
<th>Sale Price</th>
<th>Cash Flow</th>
<th>D.C.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1,583</td>
<td>637</td>
<td>2,220</td>
<td>2,018</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>1,694</td>
<td>526</td>
<td>2,220</td>
<td>1,835</td>
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<tr>
<td>2</td>
<td>1,812</td>
<td>408</td>
<td>2,220</td>
<td>1,667</td>
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<tr>
<td>3</td>
<td>1,939</td>
<td>281</td>
<td>2,220</td>
<td>1,516</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>2,072</td>
<td>128</td>
<td>(2,714)</td>
<td>(307)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Present Value Cost $6,729

(iii) Lease:

<table>
<thead>
<tr>
<th>Year</th>
<th>Lease Payment</th>
<th>Cash Flow</th>
<th>Cash Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>2,324</td>
<td>2,324</td>
<td>2,113</td>
</tr>
<tr>
<td>1</td>
<td>2,324</td>
<td>2,324</td>
<td>1,921</td>
</tr>
<tr>
<td>2</td>
<td>2,324</td>
<td>2,324</td>
<td>1,746</td>
</tr>
<tr>
<td>3</td>
<td>2,324</td>
<td>2,324</td>
<td>1,587</td>
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<tr>
<td>4</td>
<td>2,324</td>
<td>1,770</td>
<td>1,099</td>
</tr>
<tr>
<td>5</td>
<td>2,324(554)*</td>
<td>1,770</td>
<td></td>
</tr>
</tbody>
</table>

Present Value Cost $8,466

* Assume price when sold is at Book Value, therefore some restitution to the farmer from the lease company.

(iv) Hire Purchase:

<table>
<thead>
<tr>
<th>Year</th>
<th>Deposit</th>
<th>Principal</th>
<th>Interest</th>
<th>Sale Price</th>
<th>Cash Flow</th>
<th>D.C.F.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>3,034</td>
<td>2,022</td>
<td>455</td>
<td>3,034</td>
<td>3,034</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>2,022</td>
<td>455</td>
<td>2,477</td>
<td>2,477</td>
<td>2,252</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>2,022</td>
<td>455</td>
<td>2,477</td>
<td>2,477</td>
<td>2,047</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>2,022</td>
<td>455</td>
<td>2,477</td>
<td>2,477</td>
<td>1,861</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>(2,714)</td>
<td>(2,714)</td>
<td>(1,685)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Present Value Cost $7,509

The cheapest method of finance is the alternative with the lowest present value cost. In this case it is Debt Plan B a five year 100% table mortgage.
Each syndicate however will be different depending on the replacement period, the tax rate and the discount rate used. Regardless of the relative costs of the financial alternatives, availability of credit is of prime importance. The availability, and cost of additional debt capital for a farmer depends largely on his existing debt load. Lease and hire purchase agreements can usually be obtained with little difficulty.

Since the foregoing analysis has shown 100% debt finance to be the cheapest form of finance for the syndicate machine, the introduction of special credit facilities would ensure the availability of capital at reasonable cost.

2.4 Cost to the Farmer

The tractors used in the case study were assumed to have a five year replacement period and to be financed under a 100% table mortgage at 7% rate of interest. The 100h.p. tractor with cab had a purchase price of $9,100 and the 120h.p. tractor with cab cost $11,600.

2.4.1. Derivation of Hourly Charge:

The charges have been derived for the following usage rates—
- 100h.p. tractor: 980 hours
- 120h.p. tractor: 810 hours

(a) Fixed Costs:

(i) Finance:

The annual instalment for a five year 100% table mortgage has been calculated using amortisation tables.

<table>
<thead>
<tr>
<th>Purchase Price</th>
<th>100h.p.</th>
<th>120h.p.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amortisation Factor</td>
<td>0.2439</td>
<td>0.2439</td>
</tr>
<tr>
<td>Annual Instalment</td>
<td>$2,220</td>
<td>$2,830</td>
</tr>
</tbody>
</table>

Usual Rate

- 100h.p. tractor: 980 hrs/yr
- 120h.p. tractor: 810 hrs/yr

Hourly Charge

<table>
<thead>
<tr>
<th>100h.p.</th>
<th>120h.p.</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2.27/hour</td>
<td>$3.50/hour</td>
</tr>
</tbody>
</table>

(ii) Insurance:

At present insurance premiums for tractors are calculated on the basis of $7.90 for the first $400 of capital value and $0.904 for every $200 of value thereafter.

<table>
<thead>
<tr>
<th>Purchase Price</th>
<th>100h.p.</th>
<th>120h.p.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Premium</td>
<td>$47.05</td>
<td>$58.30</td>
</tr>
<tr>
<td>Usage Rate</td>
<td>980 hrs/yr</td>
<td>810 hrs/yr</td>
</tr>
<tr>
<td>Hourly Charge</td>
<td>$0.05c/hr</td>
<td>$0.7c/hour</td>
</tr>
</tbody>
</table>

(iii) Implement:

To utilise the speed and power of the larger tractors the syndicate should initially purchase a 14-foot chisel plough and a 14-foot set of harrows at a total cost of $2,000. This will be financed in the same manner as the tractor.
In addition, implement repair and maintenance is estimated to be 10% of purchase price per annum. This would involve an amount of $200/year.

### 100h.p. 120h.p.

| Total Implement Cost | $687 | $687 |
| Hourly Charge         | $0.70c/hr | $0.85c/hr |

(b) Variable Costs:

(i) Direct Material Costs:
The assumptions as to the servicing of the two tractors are as follows:

Fuel—supplied and paid for by the individual member.

Oil—engine oil is changed every 250 hours (100h.p. capacity 2.5 gallons; 120h.p. capacity 3.0 gallons). Transmission oil replaced every 1,000 hours (100h.p. capacity 10 gallons; 120h.p. capacity 15 gallons).

Oil filters—changed each oil change.

Grease—grease used at rate of 1lb/100 hours on 100h.p. tractor and 1.2lb/100 hours on 120h.p. tractor.

Fuel Filters—replaced every 1,000 hours.

Registration—$9.15/year for each tractor.

With these servicing assumptions the Direct Material Costs (D.M.C.) were derived as follows:

<table>
<thead>
<tr>
<th></th>
<th>100h.p.</th>
<th>120h.p.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil—engine at $1.32/gal</td>
<td>12.90</td>
<td>12.80</td>
</tr>
<tr>
<td>—transmission at $1.32/gal</td>
<td>12.90</td>
<td>16.05</td>
</tr>
<tr>
<td>—filter at $2.00 each</td>
<td>7.82</td>
<td>6.46</td>
</tr>
<tr>
<td>Fuel filters at $5.00 each</td>
<td>4.88</td>
<td>4.04</td>
</tr>
<tr>
<td>Grease at 29c/lb</td>
<td>2.83</td>
<td>2.81</td>
</tr>
<tr>
<td>Registration</td>
<td>9.15</td>
<td>9.15</td>
</tr>
</tbody>
</table>

| Total D.M.C. | 50.48 | 51.31 |

Usage Rate 980 hrs/yr 810 hrs/yr

(ii) Repairs and Maintenance:

After consultation with farmers an average figure of 23c/hour for the 100h.p. and 25c/hour for the 12/h.p. tractor was taken. It must be admitted however that these figures are only an approximation.

(iii) Operator’s Wage:

Since the operator would be employed on members’ farms when not driving no allowance need be made for idle time. The hourly wage was taken at $1.50/hour.
(c) **Total Hourly Charge Payable to Syndicate:**

<table>
<thead>
<tr>
<th>Description</th>
<th>100h.p.</th>
<th>120h.p.</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Finance</td>
<td>$2.27</td>
<td>$3.50</td>
</tr>
<tr>
<td>(ii) Insurance</td>
<td>$0.05</td>
<td>$0.07</td>
</tr>
<tr>
<td>(iii) Implement</td>
<td>$0.70</td>
<td>$0.85</td>
</tr>
<tr>
<td>(iv) D.M.C.</td>
<td>$0.05</td>
<td>$0.06</td>
</tr>
<tr>
<td>(v) Repairs and Maintenance</td>
<td>$0.23</td>
<td>$0.25</td>
</tr>
<tr>
<td>(vi) Operator’s Wage</td>
<td>$1.50</td>
<td>$1.50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$4.80/hour</td>
<td>$6.23/hour</td>
</tr>
</tbody>
</table>

To cover administrative expenses and unforseen expenditure the charge to members should be set at

- 100h.p. $5.00/hour
- 120h.p. $6.50/hour

The true cost to the farmer must also include the amount of fuel used.

<table>
<thead>
<tr>
<th>Description</th>
<th>100h.p.</th>
<th>120h.p.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fuel—18.2/gal 3.5 gal/hr</td>
<td>$0.64c/hr</td>
<td>4 gal/hr $0.73/hr</td>
</tr>
<tr>
<td><strong>Total Hourly Cost</strong></td>
<td>$5.64/hr</td>
<td>$7.23/hr</td>
</tr>
</tbody>
</table>

2.4.2. **Effect of Usage Rate, Depreciation and Tax on Syndicate Charge:**

Fluctuations in annual usage rates will cause the hourly charge to syndicate members to vary from year to year. This variation in hourly charge is due to the fixed charges which must be paid regardless of usage rate. Appendix E illustrates the increase in hourly cost caused by a reduction in the annual usage rate. The contract rate has been added for the purposes of comparison. The break-even usage rate, below which the use of contract tractors would be cheaper, is approximately 325 hours per year. It can be seen from the graph that at its present usage rate the 100h.p. syndicate tractor is far cheaper than the contract services.

As interest payments and depreciation allowances alter over the five year replacement period the net taxable profits of the company will change. Appendix F shows the profit and loss accounts and the cash flow statements for the first five years of the 100h.p. syndicate. As the net taxable profit increases towards year five, tax commitment will increase. To allow for this total receipts and hence hourly charges must increase. The effective increases are also shown in Appendix F.

Therefore the hourly hire charge should be reviewed each year and adjusted in the light of—

(i) estimated total usage rate for the coming year, and
(ii) changes in depreciation allowances and interest repayments for the coming year.

2.5 Comparison of Syndicate Costs with Contract Rates and the Costs of Members' Present Tractors

Full hourly costs for the present cultivation on prospective syndicate members’ farms were estimated in consultation with the individual farmers. The hourly costs are as follows:

<table>
<thead>
<tr>
<th>Farmer</th>
<th>Tractor Type</th>
<th>Hour Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmer A</td>
<td>70h.p. tractor</td>
<td>$3.80/hour</td>
</tr>
<tr>
<td>Farmer B</td>
<td>70h.p. tractor</td>
<td>$3.80/hour</td>
</tr>
<tr>
<td>Farmer C</td>
<td>60h.p. tractor</td>
<td>$3.20/hour</td>
</tr>
<tr>
<td>Farmer D</td>
<td>50h.p. tractor</td>
<td>$2.95/hour</td>
</tr>
</tbody>
</table>

**TABLE 2.4**

<table>
<thead>
<tr>
<th></th>
<th>Farmer Owned Tractors</th>
<th>Syndicate Tractors</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>D 50hp  C 60hp  A&amp;B 70hp</td>
<td>100hp 120hp 100hp</td>
<td></td>
</tr>
<tr>
<td>Hour Cost</td>
<td>$2.95 $3.20 $3.80</td>
<td>$5.64 $7.23 $11.50</td>
<td></td>
</tr>
<tr>
<td>Per Acre Time (Hours)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Past.-Supp. Feed</td>
<td>1.36 1.31 1.088</td>
<td>0.635 0.552 0.635</td>
<td></td>
</tr>
<tr>
<td>Supp.Feed.-Past.</td>
<td>1.152 1.11 0.921</td>
<td>0.516 0.45 0.516</td>
<td></td>
</tr>
<tr>
<td>Per Acre Cost ($)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supp.Feed.-Past.</td>
<td>$3.34 $3.55 $3.50</td>
<td>$2.91 $3.25 $5.93</td>
<td></td>
</tr>
</tbody>
</table>

CHEAPEST

<table>
<thead>
<tr>
<th></th>
<th>Farmer Owned Tractors</th>
<th>Syndicate Tractors</th>
<th>Contract</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 5 4</td>
<td>1 2</td>
<td>6</td>
</tr>
</tbody>
</table>

From this analysis it can be seen that on a per acre basis both of the syndicate tractors are cheaper than either the members’ present tractors or contract rates.

These figures include a labour charge of $1.50/hour. However, if the farmer himself drives his own tractor this labour charge could be higher due to the high opportunity cost of his labour at this time of year.

The hourly cost of a 100-120h.p. tractor plus implement from a contracting service is currently $11.50/hour.

Because of the differing work capacities of particular tractors, the derivation of a realistic comparison of costs must be based on the per acre cost of cultivation. Using the data from Table 2.2 the per acre cultivation costs for the different sizes of tractor can be derived. In Table 2.4 below the per acre cultivation costs of the syndicate tractors, contract service tractors and the prospective members’ tractors are compared.
2.6 Effect on Management Systems of Syndicate Members

The effects of the proposed machinery syndicate on its prospective members can be summarised as follows:

(1) A reduction in the per acre cost of cultivation on members’ farms.

(2) A reduction in usage rate of members’ tractors. The members should not entirely dispense with their own tractors, but rather use them to supplement the workings of the syndicate machine. The reduction in usage of members’ tractors has two advantages.
   (a) The replacement period of their tractors can be extended due to their reduced work load.
   (b) In the case of the farmers with 70h.p. tractors, when these are replaced a cheaper less powerful tractor can be bought.

(3) A reduction in the permanent labour force employed on members’ farms. With the tractor driver available for casual work during the “off” season from February to August, both Farmer A and Farmer C estimate they could manage their farms with the assistance of a shepherd at lambing time. At present Farmer A employs a semi-permanent man and Farmer C employs a boy full-time. Both Farmer B and Farmer D are the sole labour units on their properties, but they feel that their enterprises will benefit from the availability of additional casual labour. In addition, the driver would be able to manage members’ properties for brief periods enabling the farmers concerned to have a holiday.

(4) The four farmers felt that with a larger tractor they could increase the areas of their farms sown in greenfeed and cash crops each year. Since the spring period feed supply largely determines the carrying capacity of Canterbury light land farms, increasing the acreages of late winter—early spring greenfeed crops could lead to an increase in stock carrying potential. On the better soil types there could also be an increase in the areas of cash crops grown.

(5) Since the bulk of the heavy cultivation work on mixed cropping farms coincides with the February—August “off” season for the proposed light land syndicate, the inclusion of a mixed cropping farmer could complement the syndicate by increasing the yearly usage rate of the tractor and thus effectively reducing the hire charge to all syndicate members.

3. SUMMARY

The results of this preliminary study of machinery syndicates suggest that they have a potential role to play in New Zealand agriculture. Even though some of the data used in this study are only estimates, it is possible to draw the following conclusions:

(1) That there are potential benefits to farmers involved in machinery syndicates in both reduced per acre costs of cultivation and profitable modifications to members’ farming systems.
(2) That although New Zealand farmers conventionally have a number of non-financial reservations to the sharing of machinery, overseas experience shows that these objections are capable of being effectively answered.

(3) That 100% debt finance is the cheapest form of machinery acquisition.

(4) That due to the high overhead cost associated with farm machinery, the usage rate of a syndicate machine largely determines its hire charge to syndicate members.

(5) That if the syndicate employs a full-time machine operator there are advantages in economies of labour on syndicate members’ farms.
APPENDIX A
FARMERS’ MACHINERY SYNDICATE ( )
RULES

1. NAME
   The name of the Syndicate shall be Farmers’ Machinery Syndicate ( ) and shall be registered with the Secretary of Syndicate Credits ( ) Ltd.

2. OBJECT
   The object of the Syndicate is restricted to the following:
   The acquisition and ownership of machinery for the use of members on their own farms. The repairing and maintenance of the same. The renting of storage and other accommodation for the use of members. The employment of workers for the operation of the machinery on behalf of members. The word “machinery” shall include all agricultural and horticultural equipment, fixed or otherwise, implements, tractors, trucks, and lorries.

3. MEMBERSHIP AND CONSTITUTION
   (1) No person shall be admitted a Member of the Syndicate who is not a member of the National Farmers’ Union of England and Wales.
   (2) Within the limits of the Syndicate’s objects the Members shall be partners entitled to the Syndicate assets in such shares as they may mutually agree and their rights inter se governed by the partnership Act in so far as not inconsistent with these Rules.

4. The founder members shall be:

5. Additional members may be admitted to the Syndicate only on the unanimous approval of the members, and subject to the approval of Syndicate Credits ( ) Ltd., and on such terms as may be unanimously decided at the time.

6. Members of the Syndicate are jointly and severally liable for the debts of the Syndicate but as between themselves shall bear all debts and liabilities in such proportions as shall be laid down from time to time.

7. No purchase of machinery shall be made by or on behalf of the Syndicate except with the approval in writing of all the Members to the price and terms of purchase and to the terms of repayment of monies borrowed by the Syndicate to finance the purchase.

8. The Syndicate shall appoint a Secretary whose duties shall include laying reports before the Members.


10. The Syndicate shall open and maintain a bank account in the name of the Syndicate and all monies received on behalf of the Syndicate shall be paid into such account.
11. The Syndicate shall borrow all monies required from Syndicate Credits ( ) Ltd.

12. MAINTENANCE, USE AND SALE OF MACHINERY

For the first four years of the life of any machine and subsequently thereafter if the members so resolve, machines shall be inspected at six-monthly intervals by the distributor, or some other person appointed for that purpose by the Syndicate with the approval of Syndicate Credits ( ) Ltd., who shall render a report in writing at six-monthly intervals, to the Secretary, Syndicate Credits ( ) Ltd. and the Secretary of the Syndicate, who shall lay the reports before each member.

13. The use and maintenance of the machinery shall be governed by Regulations to be adopted unanimously by the Members. One copy of such regulations shall be forwarded to the Secretary, Syndicate Credits ( ) Ltd. Note: Insert names of founder members in para 4.

14. Each member shall insure his employee against Liability at Common Law whilst working away from his own farm.

15. No sale of machinery shall be made without the authority in writing of all Members. Whilst any loan is outstanding, prior consent shall be obtained from Syndicate Credits ( ) Ltd. and the outstanding loans in respect of the machinery in question shall be immediately repaid.

16. The basis of the reimbursement of costs of maintenance and other working expenses shall be in such manner as the members may unanimously resolve or as may be laid down in the Regulations referred to in Clause 13.

17. All machinery owned by the Syndicate will be marked with the owner’s designation.

18. PROCEDURE ON MEMBER’S RETIREMENT

A member may retire with the prior consent of Syndicate Credits ( ) Ltd. (if then a creditor of the Syndicate) and all other creditors (if any) of the Syndicate and with the unanimous consent of the continuing Members. After retirement, a retiring Member shall remain liable for all liabilities of the Syndicate unsatisfied at the date of his retirement unless (with the before-mentioned consents) he shall have made some other arrangements for the assumption of his liability by a continuing Member or Members or by an incoming Member.

19. A retiring Member whose retirement has received all the consents referred to in Rule 18 shall be entitled to receive from the continuing Members the value of his interest in the net assets of the Syndicate. Such value shall be fixed by mutual agreement between the retiring Member and all continuing Members, or failing agreement, by a Valuer appointed under Rule 25. The continuing Members may make it a condition of giving their consent under Rule 18 that the sum payable by them under this Rule shall be agreed prior to such consent becoming effective.
20. **DEATH OF A MEMBER**

The death of a Member shall not automatically dissolve the Syndicate. The estate of a deceased Member shall remain liable for the liabilities of the Syndicate outstanding at his death but for no liabilities subsequently incurred. With the consents referred to in Rule 18 the personal representatives of the deceased member may be treated as a retiring Member for the purposes of Rules 18 and 19, which shall thereupon apply mutatis mutandis.

In the event of all the consents required by Rule 18 not having been given within six months of a deceased Member's death, the Syndicate shall be dissolved and all monies due to Syndicate Credits ( ) Ltd. from the Syndicate shall become immediately payable.

21. Should it be necessary, owing to the retirement of a Member, or for any other reason, the Members may dissolve the Syndicate, which dissolution shall become effective so soon as proper provision has been made to the satisfaction of Syndicate Credits ( ) Ltd. for the discharge of all outstanding liabilities.

22. **FUNCTIONS OF SECRETARY OF SYNDICATE CREDITS ( ) LTD.**

The Secretary of Syndicate Credits ( ) Ltd. shall have the specific functions set out in Rules 23 to 27 in relation to the Syndicate. In these specific Rules the expression Secretary shall mean Secretary of Syndicate Credits ( ) Ltd.

23. The Members and changes of Membership shall be filed with the Secretary.

24. All agreements to purchase and sell machinery and the authorities to borrow shall be filed with the Secretary.

25. The Secretary shall, if so requested by a Member, appoint a valuer for the purposes of valuation of an outgoing member. The expenses of the valuation shall be met by the Syndicate.

26. The Secretary shall appoint a Receiver on the dissolution of a Syndicate and such Receiver shall be the agent of the Members and shall be entitled to exercise all the powers usually vested in a Receiver of partnership assets appointed by the Court.

27. The Secretary may, at the request of any member, appoint an auditor to examine the books, and if necessary submit a report, but such Member must deposit a sum of money to cover the costs.

28. **ARBITRATION**

In the event of a dispute the Members shall be jointly and severally bound by the decision of an arbitrator appointed by the President of the Royal Institution of Chartered Surveyors and shall accept his award as to the costs.

29. **RESTRICTION ON ALTERATION OF RULES**

So long as the Syndicate is indebted to Syndicate Credits ( ) Ltd., no alteration shall be made to the Rules without the consent in writing of Syndicate Credits ( ) Ltd intimated through its Secretary.
APPENDIX B
EXAMPLE ONLY

LOCAL RULES OF SYNDICATE NUMBER 17—HANTS

1. One Massey-Ferguson 780 8’ 6” T.V.O. Bagger Combine Harvester shall be purchased from Percy Hendy Ltd. for the net sum of $1,625.

2. All payments made by each member to Syndicate Credits Ltd., shall be paid in proportion to each member’s acreage unit quota, which is as follows:

<table>
<thead>
<tr>
<th>Member</th>
<th>Acres</th>
<th>Quota</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mr R. Creed</td>
<td>15</td>
<td>¾</td>
</tr>
<tr>
<td>Mr W. Morris</td>
<td>90</td>
<td>4½</td>
</tr>
<tr>
<td>Mr G. Wright</td>
<td>95</td>
<td>4¾</td>
</tr>
</tbody>
</table>

3. A banking account shall be opened at the National Provincial Bank, Fawley. All cheques to be signed by any two members.

4. To cover the cost of maintenance and any expenses incurred in connection with the combine, each member shall subscribe to the syndicate account a sum equal to 5/- per acre of his acreage quota.

5. The combine shall be insured through the N.F.U. Mutual Insurance Society, to cover all risks other than ordinary wear and tear.

6. Mr J. Kitcher shall drive the combine, and keep a record of acreage harvested, time spent on each member’s behalf, and fuel, oil, and grease consumption. The log book kept by the driver shall be signed by the member after each operation. Mr Morris shall submit a periodic account to the secretary for the driver’s time.

7. The fuel, oil, and grease for the combine shall be provided by the member on whose farm the combine is working. The combine shall leave each farm with a full fuel tank.

8. The combine shall be stored by Percy Hendy Ltd., and re-delivered in time for the commencement of the next harvest, for £55.0.0. per year.

9. The combine shall be used in alphabetical rotation if there is more than one member with corn ready to harvest. Each member to move one place up the list each year.

10. No member shall harvest more than half of his acreage quota at one operation if another member is waiting for the use of the machine.

11. A suitable fire extinguisher shall be purchased and fitted to the machine.

12. The combine shall be inspected yearly by Percy Hendy Ltd., for an annual charge of £3.0.0, and a report submitted in duplicate to the secretary of Syndicate Credits Ltd. In case of breakdown, repairs shall immediately be put in the hands of Percy Hendy Ltd., and the secretary informed as soon as possible.

13. Any acreage harvested in addition to a member’s acreage quota shall be
charged at a rate per acre decided upon by mutual agreement of all the members of the syndicate.

14. It is understood that additional help would be given to the driver, if at any time it is needed, e.g. during meals or sickness, etc.
APPENDIX C
THE DERIVATION OF THE "TRUE" RATE OF INTEREST FROM THE FLAT RATE OF INTEREST

The "true" interest rate is a charge based only on the amount of a debt outstanding for a particular repayment period. The flat interest rate is a charge based on the full value of the loan regardless of the amount of the loan already repaid.

The "true" interest rate can be derived from the flat interest rate by the use of the following formula:

\[ i = \frac{2ft}{(t + 1)} \]

Where:
- \( i \) = The "true" interest rate
- \( f \) = The flat interest rate
- \( t \) = The total number of equal repayments over the term of the loan.

An example of the formula's application is shown below:

A farmer borrows $1,000 at a flat interest rate of 8% to be repaid in equal monthly instalments over a four year period. The "true" interest rate is:

\[ i = \frac{2ft}{(t + 1)} \]

\[ = \frac{2 \times 0.08 \times 48}{(48 + 1)} \]

\[ = 0.15 \text{ or } 15\% \]

This example highlights the difference between the quoted and "true" rates of interest. It should be noted that the magnitude of the difference is sensitive to the repayment terms.
AN EXAMPLE OF THE CALCULATION OF A LEASE INSTALMENT

A farmer wishes to lease a tractor whose purchase price is $10,000 over a period of five years. His annual instalment is calculated as follows:

Firstly the finance company estimates the sale value of the machine at the end of the lease period. This currently calculated on the basis of an annual depreciation of 25% of diminishing value. Thus a $10,000 tractor would have an estimated resale value of $2,373 at the end of five years. This implies a capital loss of $7,627. Then:

\[
\text{TOTAL LEASE PAYMENT} = \text{CAPITAL LOSS} + \text{CAPITAL LOSS} \times (\text{FLAT INTEREST RATE} \times \text{TERM OF LEASE})
\]
\[
+ \text{RESALE VALUE} \times \text{TRUE INTEREST RATE} \times \text{TERM OF LEASE}
\]

This means that the total lease payment allows for the repayment of the capital loss, plus interest on this loss, plus interest on the residual value of the tractor. Therefore, if flat interest rate is 8½% and the true interest rate is 16%:

\[
\text{TOTAL LEASE PAYMENT} =
\]
\[
\begin{align*}
\text{ESTIMATED CAPITAL LOSS} & = 7,627 \\
\text{INT. ON CAPITAL LOSS} & = 7,627 \times (8\frac{1}{2} \% \times 5) = 3,245 \\
\text{INT. ON RESIDUAL VALUE} & = 2,373 \times (16 \% \times 5) = 1,900
\end{align*}
\]
\[
\text{TOTAL LEASE PAYMENT} = 12,772
\]

i.e. a yearly payment of $2,555, or a monthly payment of $213.
# APPENDIX F

PROFIT AND LOSS ACCOUNT AND CASH FLOW STATEMENTS FOR THE (100 h.p. TRACTOR) SYNDICATE OVER THE FIRST FIVE YEARS OF ITS LIFE

<table>
<thead>
<tr>
<th>ITEM</th>
<th>Year 1 $</th>
<th>Year 2 $</th>
<th>Year 3 $</th>
<th>Year 4 $</th>
<th>Year 5 $</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Expenditure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interest</td>
<td>777.00</td>
<td>642.00</td>
<td>498.00</td>
<td>343.00</td>
<td>155.00</td>
</tr>
<tr>
<td>Insurance</td>
<td>47.05</td>
<td>47.05</td>
<td>47.05</td>
<td>47.05</td>
<td>47.05</td>
</tr>
<tr>
<td>Direct Material Costs</td>
<td>50.48</td>
<td>50.48</td>
<td>50.48</td>
<td>50.48</td>
<td>50.48</td>
</tr>
<tr>
<td>Repairs &amp; Maintenance</td>
<td>425.00</td>
<td>425.00</td>
<td>425.00</td>
<td>425.00</td>
<td>425.00</td>
</tr>
<tr>
<td>Operators Wage</td>
<td>3510.00</td>
<td>3510.00</td>
<td>3510.00</td>
<td>3510.00</td>
<td>3510.00</td>
</tr>
<tr>
<td>Administration</td>
<td>195.50</td>
<td>195.50</td>
<td>195.50</td>
<td>195.50</td>
<td>195.50</td>
</tr>
<tr>
<td><strong>Total Deductible Expenditure</strong></td>
<td>5005.03</td>
<td>4870.03</td>
<td>4726.03</td>
<td>4571.03</td>
<td>4383.03</td>
</tr>
<tr>
<td><em>Depreciation Allowance:</em></td>
<td>3080.00</td>
<td>1505.00</td>
<td>1038.00</td>
<td>763.00</td>
<td>543.00</td>
</tr>
<tr>
<td><strong>Receipts</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tractor Hire</td>
<td>4887.50</td>
<td>4887.50</td>
<td>5039.83</td>
<td>5364.89</td>
<td>5520.97</td>
</tr>
<tr>
<td>Labour Hire</td>
<td>2045.00</td>
<td>2045.00</td>
<td>2045.00</td>
<td>2045.00</td>
<td>2045.00</td>
</tr>
<tr>
<td><strong>Total Receipts</strong></td>
<td>6932.50</td>
<td>6932.50</td>
<td>7084.83</td>
<td>7409.89</td>
<td>7565.97</td>
</tr>
<tr>
<td><strong>Net Loss</strong></td>
<td>1152.53</td>
<td>(-1152.53)</td>
<td>(-595.06)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Net Profit</strong></td>
<td>557.47</td>
<td>1320.80</td>
<td>2075.86</td>
<td>2639.94</td>
<td></td>
</tr>
<tr>
<td><strong>Taxable Profit</strong></td>
<td>-1152.53</td>
<td>-595.06</td>
<td>+725.74</td>
<td>+2075.86</td>
<td>+2639.94</td>
</tr>
</tbody>
</table>

## CASH FLOW STATEMENT

| Total Receipts                      | 6932.50  | 6932.50  | 7084.83  | 7409.89  | †10,279.97 |
| Less Deductible Expenditure        | 5005.03  | 4870.03  | 4726.03  | 4571.03  | 4,383.03   |
| Less Tax                           | -        | -        | 152.33   | 477.39   | 633.47     |
| Cash Available for Debt Reduction | 1927.47  | 2062.47  | 2206.47  | 2361.47  | 5,263.47   |
| Less Debt Reduction                | 1930.00  | 2065.00  | 2209.00  | 2364.00  | 2,532.00   |
| Cash Surplus/Deficit               | -2.53    | -2.53    | -2.53    | -2.53    | 2,731.47   |

Amount by which total receipts have increased to allow for tax commitments: - 152.33 | 477.39 | 633.47 |

Effect on Hire Charge: - 16c/hr | 48c/hr | 65c/hr |

Increase above $5.00 needed

| Hourly Hire Charge | $5/hr | $5/hr | $5.16/hr | $5.48/hr | $5.65/hr |

* Depreciation allowance is based on the 20% ordinary depreciation plus successive special deprecia-
tions of 10%: 5%; 3%; 2%. The cab ($500) is depreciated 100% in Year 1.

† Includes sale of Tractor in Fifth Year
The money from the sale of the tractor in the fifth year should be re-invested in the next tractor purchased. This will reduce the debt servicing commitments of the company for the next five year period, with a subsequent reduction in hourly charge rates.
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