

**CIHM
Microfiche
Series
(Monographs)**

**ICMH
Collection de
microfiches
(monographies)**



Canadian Institute for Historical Microreproductions / Institut canadien de microreproductions historiques

© 1994

Technical and Bibliographic Notes / Notes techniques et bibliographiques

The Institute has attempted to obtain the best original copy available for filming. Features of this copy which may be bibliographically unique, which may alter any of the images in the reproduction, or which may significantly change the usual method of filming, are checked below.

L'Institut a microfilmé le meilleur exemplaire qu'il lui a été possible de se procurer. Les détails de cet exemplaire qui sont peut-être uniques du point de vue bibliographique, qui peuvent modifier une image reproduite, ou qui peuvent exiger une modification dans la méthode normale de filmage sont indiqués ci-dessous.

Coloured covers/
Couverture de couleur

Coloured pages/
Pages de couleur

Covers damaged/
Couverture endommagée

Pages damaged/
Pages endommagées

Covers restored and/or laminated/
Couverture restaurée et/ou pelliculée

Pages restored and/or laminated/
Pages restaurées et/ou pelliculées

Cover title missing/
Le titre de couverture manque

Pages discoloured, stained or foxed/
Pages décolorées, tachetées ou piquées

Coloured maps/
Cartes géographiques en couleur

Pages detached/
Pages détachées

Coloured ink (i.e. other than blue or black)/
Encre de couleur (i.e. autre que bleue ou noire)

Showthrough/
Transparence

Coloured plates and/or illustrations/
Planches et/ou illustrations en couleur

Quality of print varies/
Qualité inégale de l'impression

Bound with other material/
Relié avec d'autres documents

Continuous pagination/
Pagination continue

Tight binding may cause shadows or distortion along interior margin/
Le reliure serrée peut causer de l'ombre ou de la distorsion le long de la marge intérieure

Includes index(es)/
Comprend un (des) index

Title on header taken from: /
Le titre de l'en-tête provient:

Blank leaves added during restoration may appear within the text. Whenever possible, these have been omitted from filming/
Il se peut que certaines pages blanches ajoutées lors d'une restauration apparaissent dans le texte, mais, lorsque cela était possible, ces pages n'ont pas été filmées.

Title page of issue/
Page de titre de la livraison

Caption of issue/
Titre de départ de la livraison

Masthead/
Générique (périodiques) de la livraison

Additional comments: /
Commentaires supplémentaires:

This item is filmed at the reduction ratio checked below /
Ce document est filmé au taux de réduction indiqué ci-dessous.

10X	14X	18X	22X	26X	30X
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12X	16X	20X	24X	28X	32X

The copy filmed here has been reproduced thanks to the generosity of:

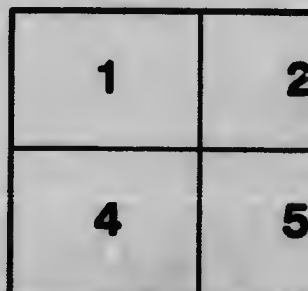
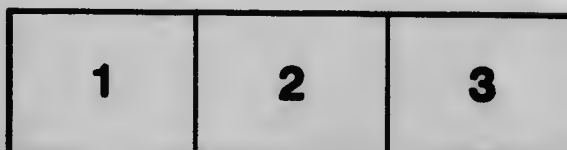
Library
Agriculture Canada

The images appearing here are the best quality possible considering the condition and legibility of the original copy and in keeping with the filming contract specifications.

Original copies in printed paper covers are filmed beginning with the front cover and ending on the last page with a printed or illustrated impression, or the back cover when appropriate. All other original copies are filmed beginning on the first page with a printed or illustrated impression, and ending on the last page with a printed or illustrated impression.

The last recorded frame on each microfiche shall contain the symbol \rightarrow (meaning "CONTINUED"), or the symbol ∇ (meaning "END"), whichever applies.

Maps, plates, charts, etc., may be filmed at different reduction ratios. Those too large to be entirely included in one exposure are filmed beginning in the upper left hand corner, left to right and top to bottom, as many frames as required. The following diagrams illustrate the method:



L'exemplaire filmé fut reproduit grâce à la générosité de:

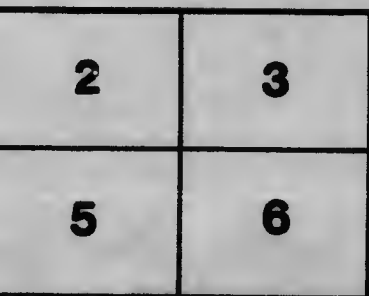
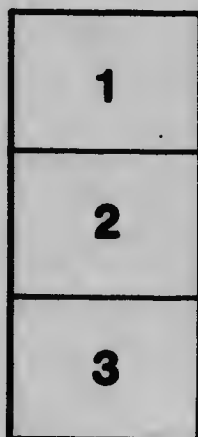
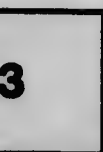
Bibliothèque
Agriculture Canada

Les images suivantes ont été reproduites avec le plus grand soin, compte tenu de la condition et de la netteté de l'exemplaire filmé, et en conformité avec les conditions du contrat de filmage.

Les exemplaires originaux dont la couverture en papier est imprimée sont filmés en commençant par le premier plat et en terminant soit par la dernière page qui comporte une empreinte d'impression ou d'illustration, soit par le second plat, selon le cas. Tous les autres exemplaires originaux sont filmés en commençant par la première page qui comporte une empreinte d'impression ou d'illustration et en terminent par la dernière page qui comporte une telle empreinte.

Un des symboles suivants apparaîtra sur la dernière image de chaque microfiche, selon le cas: le symbole \rightarrow signifie "A SUIVRE", le symbole ∇ signifie "FIN".

Les cartes, planches, tableaux, etc., peuvent être filmés à des taux de réduction différents. Lorsque le document est trop grand pour être reproduit en un seul cliché, il est filmé à partir de l'angle supérieur gauche, de gauche à droite, et de haut en bas, en prenant le nombre d'images nécessaire. Les diagrammes suivants illustrent la méthode.



MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc

1853 East Main Street
Rochester, New York 14609 USA
(716) 482-0300 - Phone
(716) 288-5088 - Fax

Government of the Province of Saskatchewan

DEPARTMENT OF AGRICULTURE

FARM MACHINERY

BY

J. M. SMITH, B.S.A.,

*Assistant Professor Agricultural Engineering,
Saskatchewan College of Agriculture.*

The up-to-date farmer ought to be interested to learn before he buys why one machine is better than another and how to operate it to the best advantage. He must be satisfied that he is getting the greatest value for every dollar invested. At the time of purchase the cost is usually given first consideration, yet a dollar or two saved on the initial cost is not to be compared with the value which a more expensive machine *may* give. When a farmer buys a horse or a cow he has clearly in mind what type he is looking for and what work he expects of them, but he does not always give enough thought to his machinery. Let prejudice give place to sound reasoning and consider the following points: (1) Efficiency; (2) construction, which will decide ease of manipulation, accessibility and variety of uses; (3) a good method of lubrication.

In considering these points we should let ourselves be guided to some extent by reliable information from users who have had experience. Take advantage of others' mistakes but do not be afraid to try out a new implement after due consideration of its merits. It is a good policy to patronise a local agent if he is a good business man, and carries a good stock of repairs. If he has not what you want, do not take just what he happens to have but write to outside reliable firms till you are suited.

By efficiency we mean the quality and quantity of the work done compared with the power required to do it. If one plough does just as good work as another and is lighter in draft, then it is more efficient. This leads us to consider the size of the implement to be used and how much power will be available for it. For example, in selecting a disc harrow or a drill, if the disc is to be used when we are ploughing, or the drill when we are discing, the number of horses at our disposal will have some bearing on the size of the implement selected. We must consider these things if we are to use our entire equipment economically, and at the same time follow good farming methods. These problems vary in complexity and each farmer must solve his own.

Under construction and durability we should decide such questions as: Is it sufficiently well made to give us good service? Will it be liable to breakages and therefore be short lived? Will it stand the strain?

Study carefully the construction of the vital parts, which should be made so that a small piece may be bought if required. In buying a plough, see that the frame and beams are strong and that levers and springs are well made. In drills we look for a frame that won't sag, for drawbars which won't get out of line and an adjustment for moving them back if they do, for good wood in wheels and box. There is a lot of wood in farm implements that is not worth the paint that covers it. The farmer recognises these points but he does not always insist on getting them. We find a difference of \$30 in the cash price of gang ploughs, \$14 in drills, \$10 in manure spreaders and \$10 in binders. I said before that the price is not all, but this difference is worthy of consideration. If the farmer had a system like the manufacturer for checking expenses he would fully appreciate these items.

Ease of manipulation.—Under this heading, see that levers, etc., are handy and that adjustments can be easily made, thus increasing the efficiency of your hired help and saving time. Changing from one make of implement to another is not always wise unless there are advantages to warrant the change. It should be remembered that repairs for a new machine may often be obtained from a discarded one to help out until the new repair arrives. Although worthy of consideration, never let this stand in the way of the purchase of a more efficient one.

Now, as to the *variety of uses* to which one implement may be put. We can get a gang plough with breaker and stubble bottoms, a cultivator with different kinds of teeth. The beater can be easily removed from some manure spreaders, thus making a handy wagon for bringing in roots. The load can be backed to the cellar door and unloaded by turning the apron by hand. Spreading gravel on a road, however, is not good for any manure spreader. When you bought your gas tractor, if you have one, you considered the work you wanted it to do, the number of ploughs it had to pull, the size of separator it had to run and so on. The same principle applied to all machinery would prevent farmers from loading themselves down with implements they do not really require.

Lubrication.—See that your plough has enclosed wheel boxes. I think it would pay to tap the hubs of the wheels and put on grease cups. It is done on large ploughs to great advantage. The life of a disc drill depends on a good method of lubrication. The best plan when starting a new machine is to put on lots of kerosene as it cuts the paint. Oil is cheaper than machinery, so never allow any implement to run dry. The writer saw a disc harrow come from an agent with oil tubes which had never been drilled through, making it impossible for oil to get to the part where it was intended for. Have a systematic way of oiling your binder then you won't miss any of it. Do not wait until you hear the squeak.

Use and adjustment.—Both ploughs and binders require adjustment to do good work. If the binder gets out of order it has to be fixed, but often we see a plough going along doing very poor work and no notice being taken of it. There is a lot of very poor ploughing done in Western Canada; for example, we see unmatched furrows, and we ask: What causes this?

(1) *Front plough may be cutting too wide or narrow.*—This can be remedied by giving the front furrow wheel more or less "lead" as desired; or coulter may need adjusting.

(2) *Ploughs not cutting the same depth.*—This is easily remedied by the lever attached to land wheel.

(3) *Side draft.*—It is practically impossible to plough with four horses abreast and not have side draft without putting one horse on the ploughing. The best way is to plough tandem as it is easier on the horses and we get good results.

(4) *Bail support.*—It seems a small matter, but experts often go long trips just to move a bail support a few inches. If it slips in the frame it allows one side of plough to go too deep.

(5) A sprung beam will also cause trouble. By setting a plough to float in stony land, this may sometimes be prevented. The set screw in the foot lift attachment is where this adjustment is made.

The question is often asked, where should a coulter be set? This depends on the conditions under which you are ploughing. If you are ploughing down long stubble on manure it must be set ahead well, to give lots of clearance under the beam. Good sound common sense will overcome many difficulties. Keep ploughshares sharp. The draft will be less and much better work will be done. It is a good plan to have an extra set on hand so that when one set is being sharpened the other can be used without delaying the work.

In mowers there are two adjustments which are not attended to as well as they might be. The first is the alignment of the cutter bar. It should extend to the side of the mower at right angles to the crank shaft. If it does not, the pitman will be cramped, increasing the wear and probably causing a broken pitman. There is sure to be wear in the hinge joint of the cutter bar and an adjustment must be made from time to time. The device for doing this varies on different makes, but is found on all good mowers. Secondly, timing the mowers, in other words the knife may not register, *i. e.*, it travels too far in one direction and not far enough in the other. In some makes the pitman may be adjusted while in others the yoke has to be adjusted to remedy this. If the knife does not fit well over the ledger plates thus losing the advantage of a shear cut, the clips can be hammered down. The best mowers are now equipped with wearing plates where the sickle comes in contact with the cutter bar. The clips are bolted on to facilitate their replacement when worn. To harvest peas, a windrowing attachment, consisting of a set of curved rods may be fastened to the cutter bar.

Knotters on binders often cause trouble and the farmer rushes off to town in harvest for a new binder when a knotter pinion costing forty cents was all that was necessary. We should remember that the more machinery we require to sow and harvest a crop, the greater will our cost of production be and the profit will be reduced.

I will now pass on to the care of the implements after they have been in use. We will consider this under three heads: Repairing, Housing and Painting.

Some definite system must be followed if the work is to be successful. Often the machine is taken out in the spring and a broken part is found. Sometimes repairs cannot be got at once and the result very often is a great delay in obtaining these or the necessity of purchasing of a new machine. More emphasis should be placed upon the matter of systematic repairing than upon any other phase of the care of farm machinery.

The greater part of the average implement is not subject to wear. For example, the modern gang plough. There are comparatively few parts likely to be worn out except the share, the bail boxes, wheel boxes and axles. All of these should be easily adjustable or renewable at comparatively small expense making the plough as good as when it left the factory.

Housing.—Rust is more destructive than wear. The average life of a binder extends over a number of years, largely independent of whether it cuts 75 or 200 acres of grain each year. Probably the majority of farmers at present do not feel like spending money on an implement shed, but it is a good investment. If it is not possible, bright parts of ploughs and drills should be smeared with axle grease. Always remove this grease from the ploughs with kerosene before using, as it is gummy and the plough will not scour, especially if the soil is sticky. The grain spouts can be put in the drill box, and this may be well protected by putting on tar paper and nailing it down with a few laths.

Painting.—Wooden parts, especially, should be kept well painted. Paint can be bought but home-mixed paint is better though a little more expensive, for example: wagon paint in Saskatoon costs \$3.50 per gallon, but how much better paint can be bought for \$4.00.

Red Ground in Turps, 6 pounds.....	\$2.70
Linseed Oil, 6 pints.....	1.20
Dryer.....	.10

\$4.00

The bought paint has a great deal of gasoline in it, which is not a good thing. Red lead, linseed oil and turpentine are also useful for painting machinery.

When your machinery is worn out, do not throw it onto the stone pile or into the bush. Take all the bolts off, oil them and put them away systematically according to size. Do the same with the other parts and some day when you are in a hurry you can go and get what you want, thus saving much valuable time.



4





