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Study on the Development for the vinyl   root eliminator

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		mm	650
		mm	1051
		mm	1060
		kg	320
		rpm	335
		rpm	283
		rpm	240
		mm	890
		set	3
		mm	900

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	/min	35
	rpm	700
	rpm	1,011
	mm	464

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		40
		40
		236 rpm
	135.8 rpm	
	67.9 rpm	
		992 mm
		966 mm
		931 mm

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	-	13.6h / 10a	13.6h / 10a
	0.62h / 10a	2.7h / 10a	3.32h / 10a

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S U M M A R Y

. Title

Study on the development of mulch vinyl & root eliminator

. Objectives and Importance of the Project

The consumption of vinyl film is increased every year due to a household cultivation with using of mulch vinyl for horticulture or vegetable farming. In order to improve product per area, it is necessary to cover mulch vinyl film over the ridges of vegetable and leaf tobacco farm-land. But these cultivating methods produce many environmental problems of buried vinyl debris in ground after harvest, and make troublesome in effort to removing them.

It is very important to remove buried vinyl debris in ground for protect environmental pollution and to reuse the waste resources, therefore it is necessary to mechanize removing work with using of developed eliminator for the purpose of saving high labor cost.

. Research Contents and Scopes

Year	Contents	Scopes
1st Year (1997)	1) Feasibility study 2) Selection of prototype specification & composition of essential parts	- Search of field situation and related references - Conceptional design of prototype model and its essential parts - Fabrication of its foundation frame
2nd Year (1998)	1) Design & fabrication of prototype eliminator 2) Performance test and modification	- Design & fabrication of remained parts for prototype eliminator - Performance test for stem cutting, vinyl removal condition of prototype eliminator - Modification of cutting and digging mechanism

. Results of the project and recommend for the application

In the first project term, we have studied about digging, uprising mechanism for root burried in ground and its driving mechanism which operated 3 rotors in reverse direction an mulch vinyl eliminator, and stem cutting mechanism operated by hydraulic motor, with using of power transferred from pulling tractor. The specification of a prototype root remover and stem cutter is as follows;

Mechanism	Component		Unit	Specification
Root remover	Dimmension	Length	mm	650
		Width	mm	1,051
		Height	mm	1,060
	Total weight		kg	320
	Power Transfer			Gear and Chain
	Rotor speed	Front	rpm	335
		Intermediate	rpm	283
		Rear	rpm	240
	Rotor dimmension	Length	mm	890
		Quantity	set	3
	Removing width		mm	900
	Shape of rotor			Cage with rod bar
	Direction of rotor			Reverse
Stem cutter	Hydraulic pump		/min	35
	Cutter speed		rpm	700
	Hydraulic motor speed		rpm	1,011
	Cutting width		mm	464

In the 2nd project term, we fabricate the prototype eliminator and carried out its performance test according to the agricultural machinery test code accordingly. After the test a vinyl transferring mechanism was modified. The final specification of vinyl transferring and working capacity of the eliminator can be described as follows;

Component		specification
Vinyl tranferring chain	Pitch	40 mm
	Number of link	40 mm
	Speed	236 rpm
Speed of vinyl transferring belt		135.8 rpm
Speed of vinyl guide		67.9 rpm
Dimmension	Length	992 mm
	Height	966 mm
	Width	931 mm

Component	Assembling work	Removing work	Total
Labor	-	13.6h/10a	13.6h/10a
Prototype	0.62h/10a	2.7h/10a	3.32h/10a

The results of this project will be applied as follows;

- Arrange for commercialization of the developed root & vinyl eliminator in domestic and worldwide market

- Issue the patent application related technologies for the developed eliminator

CONTENTS

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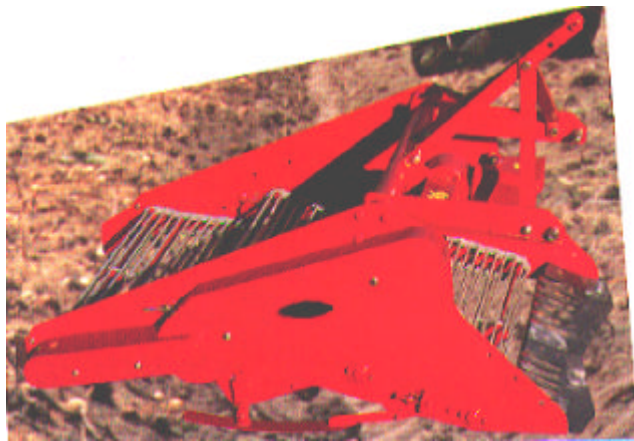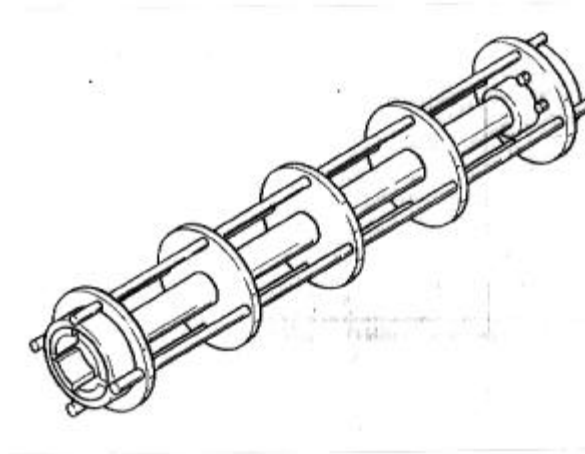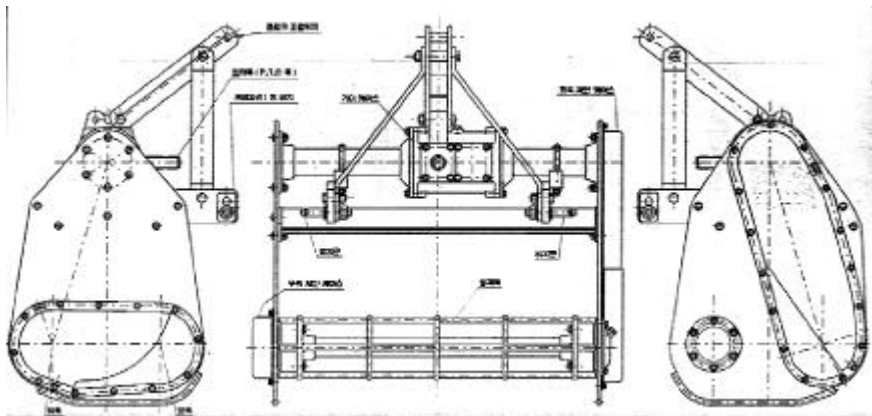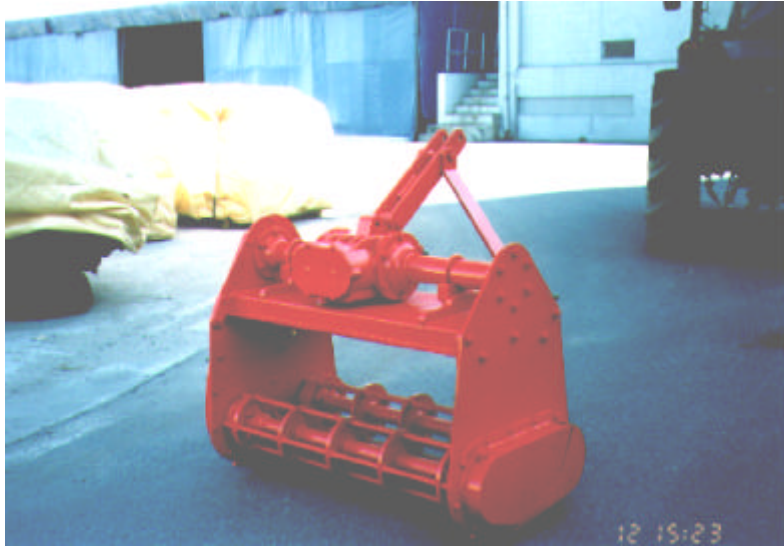
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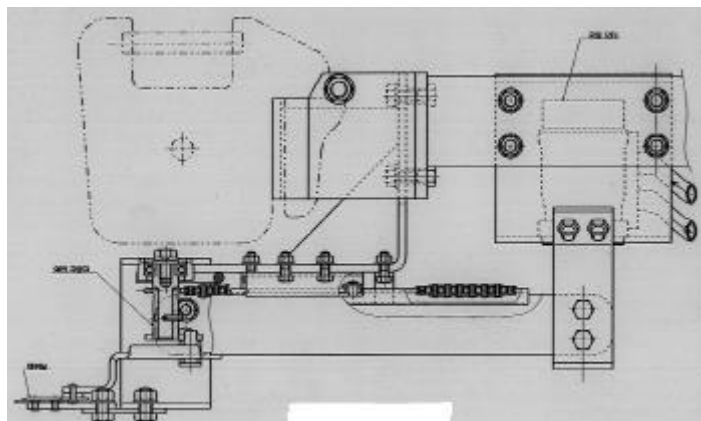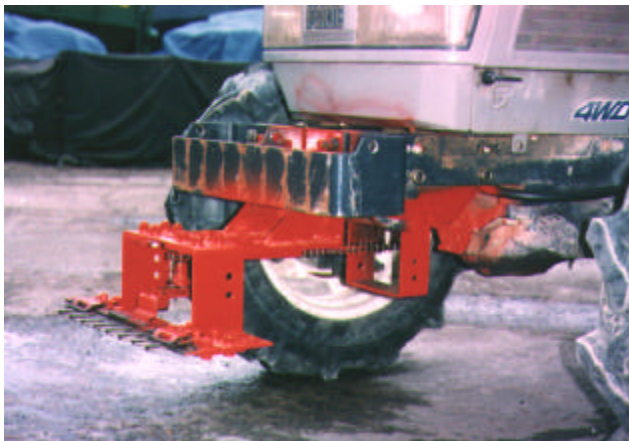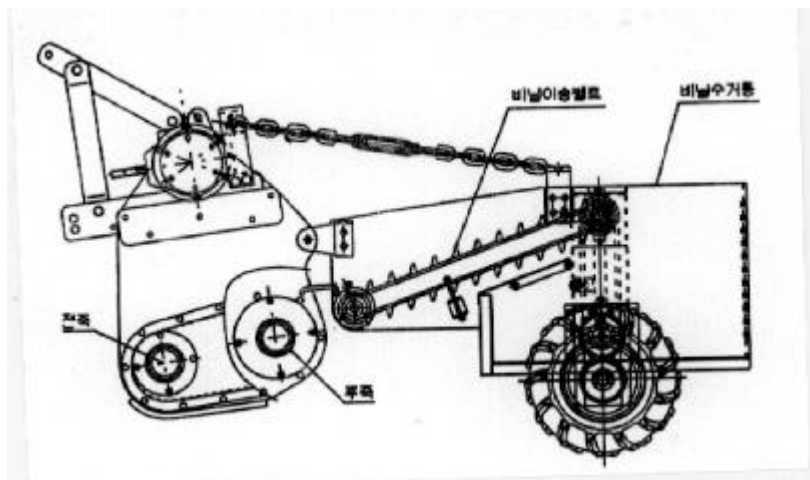
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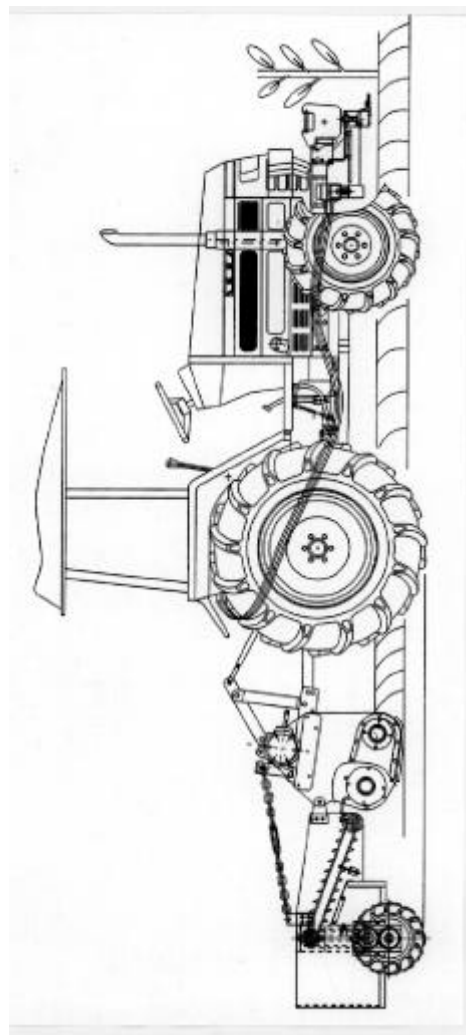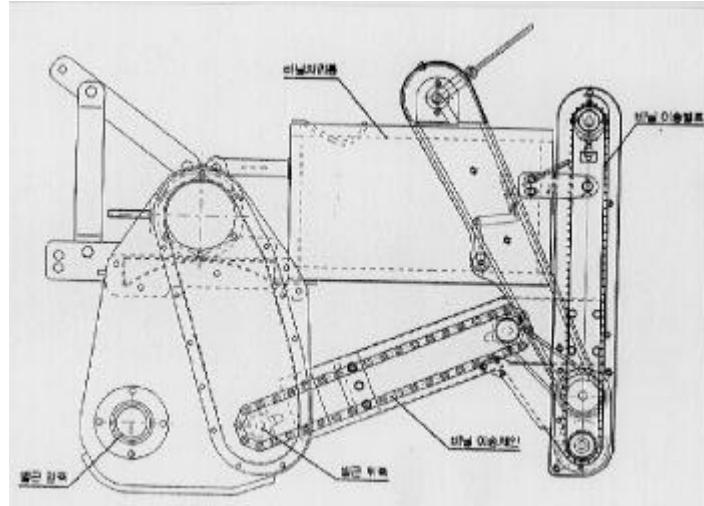
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		40 mm	
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		236 rpm	
	135.8 rpm	
	67.9 rpm	
		992 mm	
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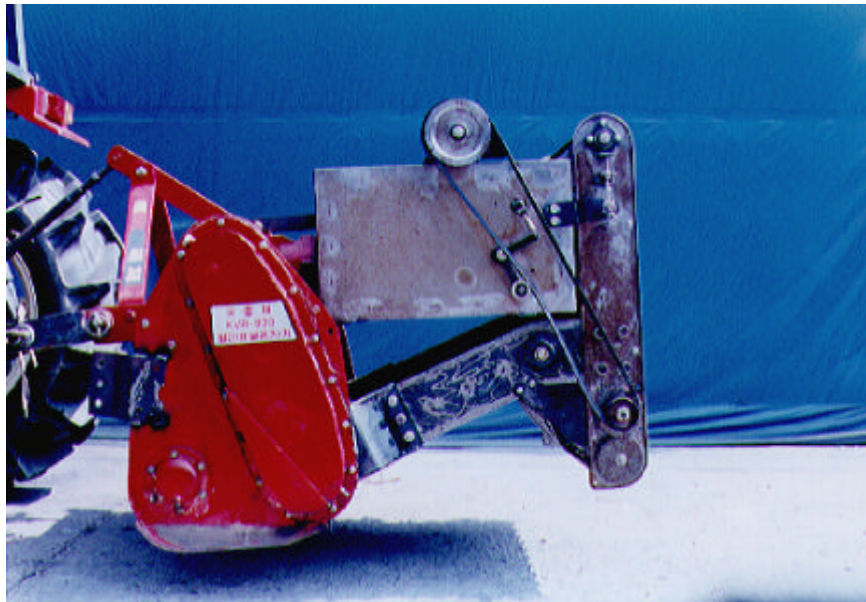
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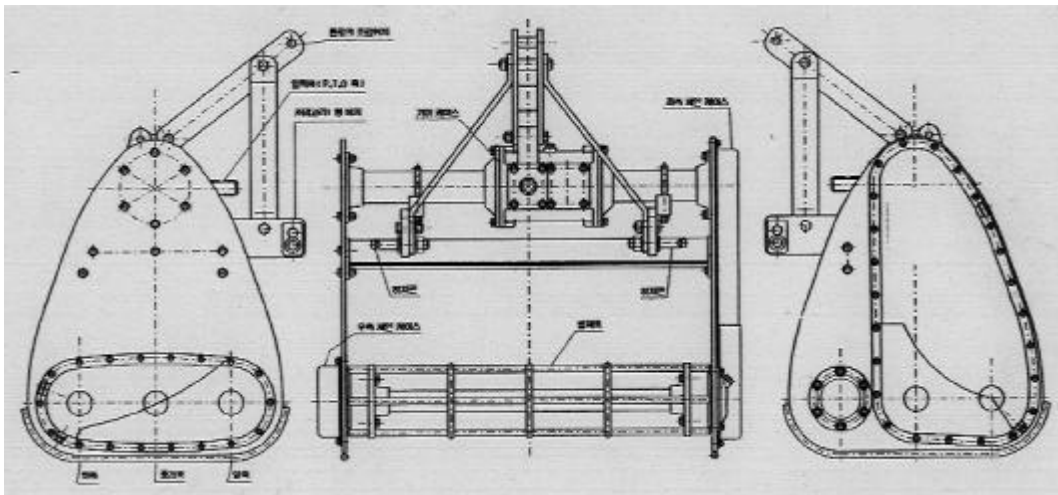
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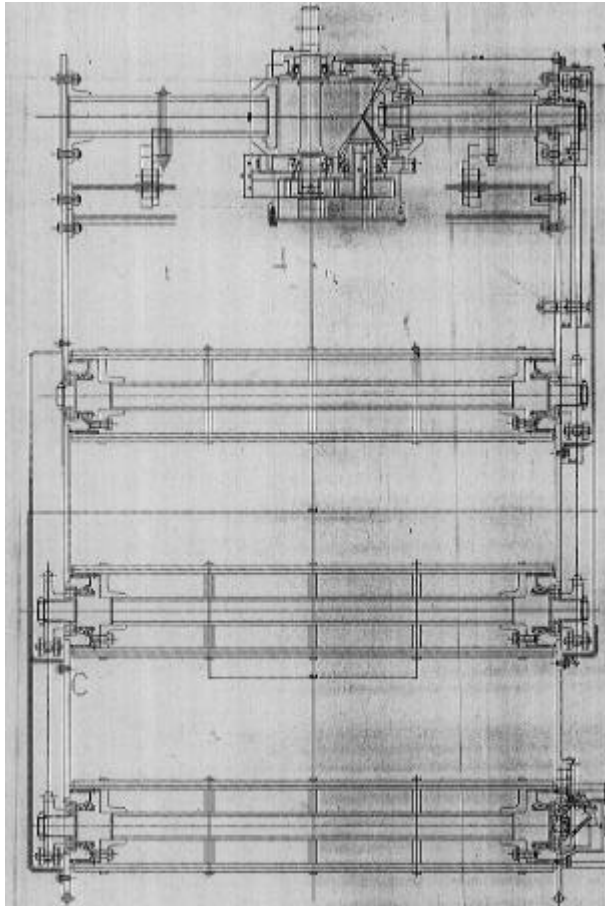
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	0.62h / 10a	2.7h / 10a	3.32h / 10a

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`91	13.5h / 10a	
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	0.62h / 10a	2.7h / 10a	3.32h / 10a

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