

BIOBALER™



**AE50 OUTSTANDING
INNOVATIONS,**
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World industry first!

An innovative solution!

The BioBaler harvesting system is a simple concept. In a single pass, with only one operator, the BioBaler cuts and compacts biomass into a dense round bale. Bales can be collected on site at any time after harvest.

The philosophy behind the BioBaler harvesting system is to use a small dimension harvester to collect and densify the biomass in the field reducing the ecological footprint. The shape and density of bales allow a better cost efficient transportation from the field to the power plant with conventional equipment. At this point, the biomass can be processed according to the specifications of the facilities with more efficient equipment.

Bales can be delivered directly to the plant or be stored in the field for future use. Bales of biomass will not deteriorate during storage over a long period, even though they are harvested in very wet conditions. An advantage of this technology is that biomass bales dry out naturally without risk of spontaneous combustion, thereby increasing its heat potential; unlike a pile of woodchips that are rotting.

Each bale contains over 1MW/hr of energy depending of the type of biomass. The BioBaler can produce up to 40 bales/hr (20 tons/hr) in plantations and 15-18 bales/hr (8-10 tons/hr) in natural environments. The BioBaler can collect different species of shrubs, bushes and trees up to 15 cm (6 inches) in diameter.

Up to now, the BioBaler Harvesting System is the only economically viable technology able to collect natural brushes.

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BioBaler output: a compact round bale

The BioBaler produces a round, compact bale that is easy to handle and transport.

Each bale weighs around 500 - 600 KG (1 000 - 1 200 lbs).

Moving, storing and drying process

Round bales of willow and poplar will dry naturally from 50-55% to 18-20% moisture content. (Canadian observation)

Within 8 weeks of warm weather, willow and poplar moisture content will decrease naturally. Result may vary depending of general weather condition of your country.

Logistic of bales after harvesting

From the middle of the field to the road.

Bales can be picked up by an "Anderson self-loading bale carrier". This bale carrier will collect the bales into the field, and drop the bales along the road or in the field.

Once all the bales are close to the road, you can handle them with an "Anderson bale grabber" and stack them for storage purposes, or load them onto a flat bed trailer.

From the road to the power plant

Once bales are dry, they can be picked up from the field, and sent to the power plant to be ground or burned. A regular flat bed conventional trailer can contain over 40 round bales per load.

BIOMASS FROM

Short rotation crop; willow, poplar, eucalyptus, and many more



Natural brushes, invasive trees and plants; Gorse/Ulex Europeaus, and many more



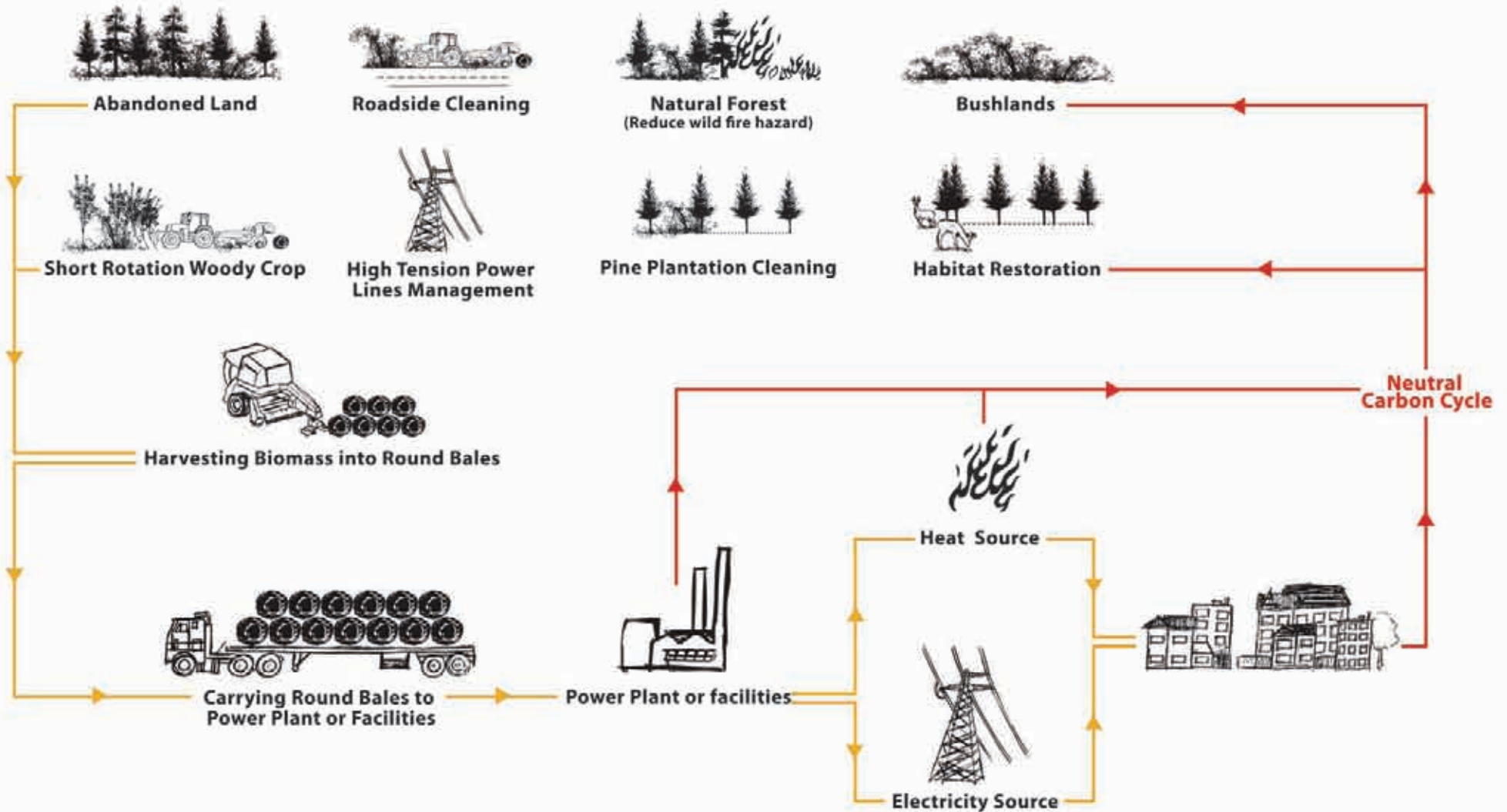
Power lines and road side



Fruit plantation, pruning operation



BIOBALER CONCEPT



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Benefits of the BioBaler

- **Low capital cost** - The BioBaler is an affordable solution to cut, collect, and compact biomass in a friendly package.
- **Small dimension machine** - The BioBaler can be transported from one field to another without special regulations*.
- **Cost efficiency of bale transportation** - Round bales produced by the BioBaler, can be stacked on a flat bed conventional trailer. Over 40 bales can be transported per load.
- **Handling bales with conventional equipment** - You don't need to spend money on extra equipment, bales can be handled with standard equipment.
- **One man operation**
- **Easy storage** - Round bales can be stored in the field, or at the power plant location by stacking them.
- **Bales dry naturally** - Round bales of willow and poplar produced by our BioBaler system allow the air to pass through the core of the bale. This will allow the bale to dry naturally, without extra cost. From the harvest, 8 weeks of warm weather is needed to decrease the moisture content from 50-55% to 18-20%.**
- **Versatile machine** - The BioBaler can be used to harvest biomass in natural forests, under power lines, short rotation crops, several tree species and environment.
- **Cost efficiency of transporting bales**

* Read and respect your local road regulation.

** Canadian observation. Within 8 weeks of warm weather, willow and poplar moisture content will decrease naturally. Result may vary depending of general weather condition of your country.



About Biomass

Harvest the future!

Biomass is any organic material from plant or living organisms. Plants and trees capture energy from the sun and store it as biomass. Biomass can be used as raw material for industries or energy producers.

Biomass from forests and agricultural land is renewable and a sustainable feedstock for clean energy production in the future. This biomass can be harvested simultaneously with management of green areas, such as under power transmission lines, roadside, or abandoned farmland (for site restoration).

In natural environments, such as forests and bushlands, biomass is harvested to restore wildlife habitats, reduce wildfire hazard and minimize herbicides used.

Biomass can come from short rotation woody crops of trees like willow, hybrid poplar, or many others.



TURNING WOODY AREA INTO BIOMASS ENERGY

BIOBALER

BASIC FEATURES

Mulcher head 88.5"
Fixed chamber 4' x 4'
2 forestry tires 500/60-22.5
Rear Camera
Twine wrapping system
Axle Lift System
Electronic control box
Rear road lights
Box for rolls of twine 8

OPTION

12-foot long pole
2 forestry tires 700/45-22.5
Hydraulic brake system (EU regulation)
Bumper (mount of frontal hydraulic 3 point hitch)

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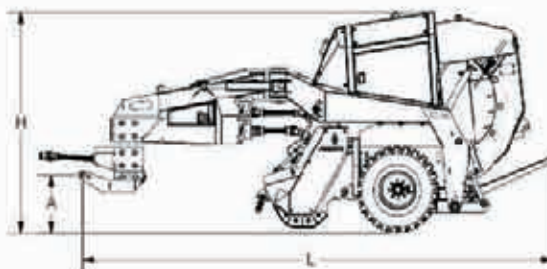
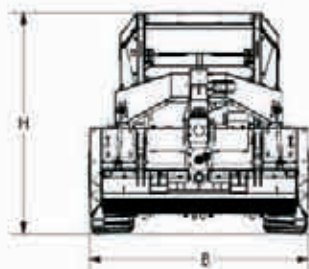
BioBaler

Technical specifications

Drawbar length	6-foot long	12-foot long
Power Take-Off Required		
Power (Min/Max)	150 kw (200 HP) / 187 kw (250 HP)	
Rotation Speed (Running Speed)	1000 RPM	
	1 ¾ Z20	
3 hitch point		
Category	cat. 2 or cat. 3	cat. 2 or cat. 3
Drawbar with Center Pivot		
Length (Drawbar and Hitch)	2 286 mm (90 in)	4 120 mm (162 in)
Angle	42°	42°
Lateral offset	1 180 mm (46 ½ in)	2 360 mm (93 in)
Dimensions		
Base Height of the Coupling (A)	620 mm (24 ½ in)	620 mm (24 ½ in)
Width (B)	2 585 mm (101 ¾ in)	2 585 mm (101 ¾ in)
- Minimum Height (H min)	2 460 mm (97 in)	2 460 mm (97 in)
- Maximum Height (H max)	2 970 mm (117 in)	2 970 mm (117 in)
Length (L)	5 460 mm (215 in)	7 290 mm (287 in)
Weight		
Basic Machine	6 820 kg (15 035 lb)	6 820 kg (15 035 lb)

Pneumatic Axle

Forestry Tires	
Dimensions	500/60-22.5 16PR
Inflation Pressure	2.5 bar 40 PSI
Optional forestry tires	
Dimensions	700/45-22.5 16PR
Inflation Pressure	2 bar 30 PSI
Axle Lift System	
Ground Clearance (Lowered Position)	210 mm (8 ¼ in)
Clearance	510 mm (20 in)



Feed System Components

Mulcher	
Working Width	2 250 mm (88 ½ in)
Exterior Width	2 580 mm (101 ¾ in)
Number of Teeth	50
Rotor Speed of Rotation	2 000 RPM
Feed Rotor	
	Flail hammer
Bale Chamber	
	Steel rollers with bar conveyor chain
Diameter	1 250 mm (49 in)
Width	1 200 mm (47 in)
Baling Density	Can be adjusted using the hydraulic pressure limiter
Drive protection devices	
Feed Rotor Drive	Shear bolt
Mulching head	Cam torque limiter
Bale Chamber	Cam torque limiter

Tying Mechanism

Automatic Double Twine Tying	
Number of Revolutions	13 to 22
Twine type	
Sisal (biodegradable)	300 m/kg
Synthetic	400+ m/kg
Box for Rolls of Twine	
Number of Rolls	8

Tractor Requirements

Hydraulic Circuits	4 double acting control valves
Oil Flow	
Maximum Flow	80 L/min (19 GPM)
Maximum Pressure	190 bar (2 800 PSI)
Minimum Pressure	130 bar (2 000 PSI)
Others	
Engine Horse Power	150 kw (200 HP)/187 kw (250 HP)
PTO Shaft Size	1 ¾ Z20
Wheels	Forestry type
Transmission	Variable
Security Protection	
Forestry protection under the tractor (skid plate)	
Roll cage over the tractor cab	
Steel grid over the back window of the tractor (hole smaller than 1 in (2.5 cm))	



Anderson Group Co.

Toll free: 1 888.833.2952
www.grpanderson.com