



Conservation Systems Research

Rollers for Terminating Cover Crops

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Rollers are used to flatten and terminate (kill) cover crops before cash crops are planted. Choose the one that best fits your operation. Rollers differ in several ways:

- a) Cost and ease of assembly.
- b) Weight and horsepower requirements.
- c) Vibration to the tractor and driver.
- d) Operating speed.
- e) Termination effectiveness.



Smooth roller drum

Smooth drum (no crimping bars). May include attachments for herbicide application.

> 60 horsepower tractor required.

- Low vibration and faster operating speed.
- Excellent kill with herbicide.
- Cheapest, easiest to make.
- Poor kill without herbicide.

Straight crimping bar roller/crimper

Smooth roller with straight crimping bars attached

> 60 horsepower tractor required.

- Aggressive termination of cover crop.
- Easy to make.
- High vibrations to tractor and driver.
- Requires slow operating speed.



Curved crimping bar roller/crimper

Smooth roller with curved crimping bars – constant contact with soil reduces vibrations.

> 60 horsepower tractor required.

- Few vibration problems.
- Fast operating speeds.
- Reduced crimping action.

Smooth roller with oscillating crimping bar assembly

(Kornecki et al, 2009, U.S. Patent #7,604,067B1)

A large, smooth roller and a crimping bar with cam mechanisms that preload and release springs, slamming the bar into cover crop material.

30 to 40 horsepower required.

- Adjustable to soil & plant conditions.
- Few vibration problems and lighter-weight construction.
- More components.





Two-stage roller/crimper

(Kornecki, 2011, U.S. Patent #7,987,917 B1)

A large, smooth roller and a smaller, spring-loaded roller with crimping bars.

30 to 40 horsepower required.

- Adjustable to soil & plant conditions.
- Few vibration problems.
- Lighter-weight construction.
- More components.

Four-stage roller/crimper

(Kornecki, 2011, U.S. Patent #7,987,917 B1)

A large, smooth roller and three smaller, spring-loaded rollers with crimping bars.

30 to 40 horsepower required.

- Adjustable to soil & plant conditions.
- Few vibration problems.
- Lighter-weight construction.
- More components.



Rotary roller/crimper for elevated bed culture

(Kornecki, 2009, U.S. Patent #7,662,517 B1)

A crimping roller for elevated beds.

> 60 horsepower required.

- Crimps both furrows and beds.
- Less vibration than straight bar roller – but still aggressive termination.
- Can be modified for different bed configurations.
- Requires medium operating speed.

Powered roller/crimper for walk-behind tractors

(Kornecki, 2012, U.S. Patent #8,176,991 B1)

Light enough for small-farm equipment.

- Light enough for walk-behind tractors.
- Crimping bar kills cover crop without chemicals
- Crimping frequency can be adjusted for different crops.
- Good choice for small, organic farms.
- Only suitable for small acreages.



Two-stage roller/crimper for walk-behind tractors

(Kornecki, 2011, U.S. Patent #7,987,917 B1)

Light enough for small-farm equipment.

- Light enough for walk-behind tractors.
- Crimping bar kills cover crop without chemicals
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