PRODUCT MARKETING BULLETIN

ALL SUNFLOWER DEALERS
BULLETIN SF09-006PMB
June 23, 2009

MODEL 7600 STRIP-TILL SYSTEM

NEW PRODUCT ANNOUNCEMENT

Sunflower announces the introduction of the 7600 Series Strip-Till System. The 7600 series delivers the strength and features demanded by today's high-horsepower precision farming. This tool is available in 20' (6.10 m) and 30' (9.15 m) tool bars accommodating eight and twelve row units at 30" (762 mm) spacing. Heavy duty parallel links connect the row units to the frame. This keeps the shank and blade angles true no matter the conditions. Adjustments are fast and easy. This allows the tool to be used for fall fertilizer placement, with over winter mellowing in mind or spring use with a planter ready seedbed as the goal.
July production with an August launch is planned but units may be reserved as early as June.

- 7610-20 single section rigid 20’ (6.1 m)
- 7630-30 three section folding 30’ 917.5 m)
- 30” (762 mm) row spacing
- Parallel linkage with spring down pressure
- Shear bolt protected
- 24” (559 mm) x .25” (6.35 mm) coulter blade with depth band
- 13” (330 mm) spoke trash whippers
- 1” (25mm) x 3” (75 mm) x 24” (610 mm) shank
- 16” (406 mm) wavy berming disc blades
- 12” (305 mm) rolling baskets

COULTER BLADE

The large 24” (610mm) x .25” (6.35 mm) coulter blade cuts deep slicing through surface and subsurface residue eliminating possible residue interference with the shank. Depth bands on the coulter blades ensure row unit depth and stabilize the tool. The all-welded coulter assemblies are an integral part of the row unit and are constructed of the same heavy .5” (12.7 mm) thick steel as the balance of the row unit.

Adjustable scrapers clean both the blade and the depth band enabling the unit to work through tough conditions. Two heavy duty sealed bearings are used in each hub to minimize daily maintenance.

ROW CLEANERS

The row cleaners are positioned close to the coulter for peak performance. The steel fingers move the sliced residue from the row just ahead of the shank. The row cleaner assemblies have a full 8” (203 mm) range of vertical movement calibrated in .25” (6.23 mm) increments. The tapered fingers turn on double rows of heavy-duty greaseable bearings which are protected by bolt-on hub caps.
Cleaning the row of residue improves soil tilth, water permeation and improves soil moisture.

SHANK ASSEMBLY

The 1/2” (12.70 mm) x 3” (76 mm) x 24” (610 mm) mole knife shank shatters compaction in the root zone allowing root systems to go deep and utilize soil moisture and nutrients. Shank depth is adjustable in 2” (51 mm) increments with an effective working range of 4” (102 mm) to 10” (254 mm) deep. The 15° mole point creates a “mole hole” the perfect environment for a concentration zone of NH3 or iquid fertilizer. Many different knives, points and fertilizer delivery systems are available. This tool can be customized for virtually any program.

BERMING BLADES

The large 16” (406 mm) diameter wavy blades are fully adjustable with a 4” (152 mm) vertical range and up to10° blade angle adjustment. The berming blades are mounted close to the tillage shank to capture the tilled soil. This builds a berm of optimum shape and height.

BERM REEL

Comprised of 1/4” x 11/4” x 12” (6.35 x 31.75 x 533 mm) concave bars, this large diameter x 12” (533 mm) wide reel is key to sculpting and conditioning the berm. Particulate size, firmness and berm shape are greatly determined by the berm reel. Spring down pressure can be adjusted from 0 to 125 pounds (56.70 kg) to customize the berm for all applications.

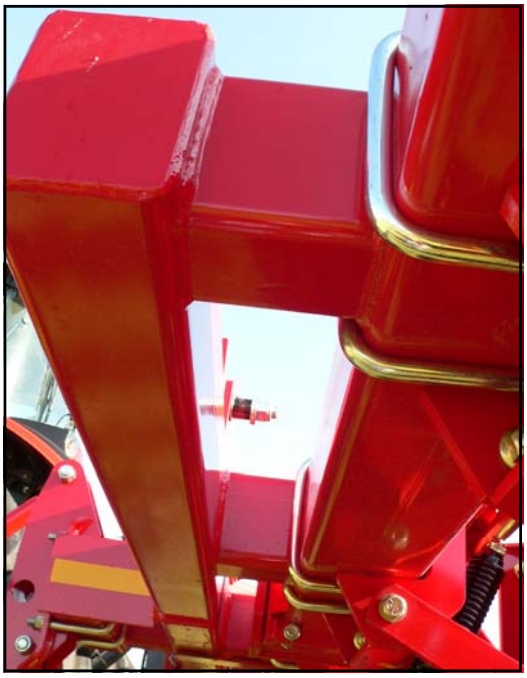
ROW UNIT MOUNTING

Wrap around mountings firmly attach the row unit to the frame. Heavy duty springs are easily adjusted in increments of 25 pounds (11.34 kw) of down pressure per revolution. A full 10” (254 mm) of vertical travel has been engineered into the wide set parallel linkage. Parallel linkage allows each row unit to work independently from the tool bar which maintains the shank and blade settings.

SHANK PROTECTION

The first generation 7600 Series Strip-Till System utilizes a shear bolt protection design. The shear bolt and pivot point are located directly behind the row cleaners. Once the bolt is sheared the shank mount assembly is free to pivot upward a full 90 degrees to clear any obstruction. This protects the shank assembly from damage. The 1/2” (12.7 mm) shear bolt must be replaced to restore the row unit to a working condition. The auto-reset shank option will be introduced at a later date.

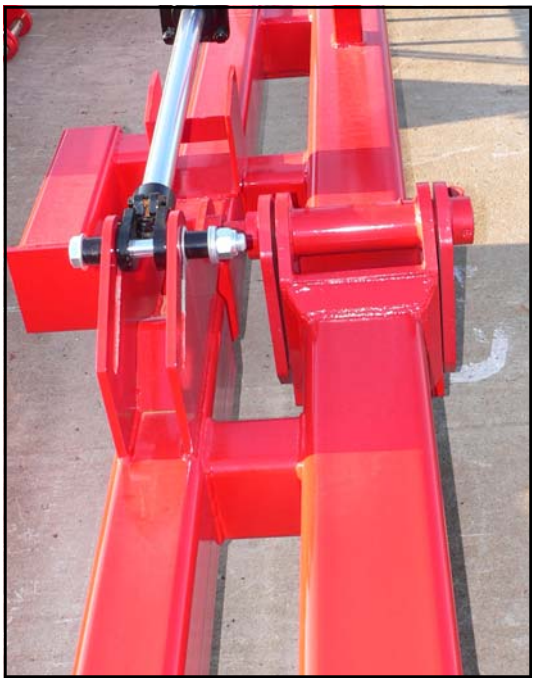
TOOL BARS



Current tool bar configurations consist of an eight row rigid and two twelve row vertical fold tool bars with 30” (762 mm) row spacing. The 7600 series frames are considered “single bar” tool bars but these tool bars are built with additional bridged tubing for exceptional strength.

The eight row tool bar is constructed of a 7” x 7” x 1/4” (179 x 179 x 6.35 mm) tube combined with an additional 5” x 7” x 1/4” (127 x 179 x 6.35 mm) tube for added strength.

The twelve row folding tool bars are similar in construction and differ from one to the other only in degree of fold. The 90 degree vertical folding tool bar is required with (optional) hydraulic row markers. The 35 degree tool bar folds past center producing a narrower transport dimension.



Both bars are constructed of 7” x 7” x 3/8” (179 x 179 x 9.5 mm) tubes in the center sections and 7” x 7” x 1/4” (179 x 179 x 6.35 mm) tubes in the wings. The wing and center section tubes are combined with a 5” x 7” x 1/4” (127 x 778 x 6.35 mm) tube to form the bridged bracing Design. This design strengthens the tool bar and prevents rearward deflection which could distort the spacing of the rows.

WING HINGES

The wings fold on 2” X 16” (51 X 406 mm) hinge pins. Full width double hinges are used to maximize strength and stability. Wings may be locked into the working position to ensure uniform tool bar height.

Wheels & Tires

The two 9.5L 8 ply tubeless tires with 15” x 6” (381 x 152 mm) wheels and 6 bolt hubs stabilize and maintain the height of the tool bar.
A hand ratchet at each wheel location make adjustments to the bar quick and easy.

Trail Hitch
(16531R)

The heavy duty rear tow hitch is equipped with a 3” (76.20) single lip clevis.

Optional Equipment

12 Row Marker Set
(16507R)

7600 Strip-Till Series Specifications

Model Working Width ft (m)	Number of Rows Row Spacing in (mm)	Tool Bar Dimensions in (mm)	Under Frame Clearance in (mm)	Tool Weight lbs (kg)	Transport Width ft (m)
7610-20 20' (6.10 m)	8 rows 30" (190.50)	Rigid tool bar: 7" (778) x 7" (778) x 1/4" (6.35) with 5" (127) x 7" (778) x 1/4" (6.35) bracing (2) 9.5L 8 ply tubeless 1/4" (6.35) tires with 15" (381) x 6" (152) wheels and 6 bolt hubs	28 (711)	7,250 (3,289)	20.67 (6.30)
7630-30NT 30' (9.15 m) 35 degree fold	12 rows 30" (190.50)	Folding "Double Bar" tool bar: 7" (778) x 7" (778) x 3/8" (9.5) center frame with 7" (778) x 7" (778) x 1/4" (6.35) wings with 5" (127) x 7" (778) x 1/4" (6.35) bracing. (2) 9.5L 8 ply tubeless tires with 15" (381) x 6" (152) wheels and 6 bolt hubs	28 (711)	11,700 (5,307)	15.75 (4.80)
7630-30 30' (9.15 m) 90 degree fold	12 rows 30" (190.50)	Folding "Double Bar" tool bar: 7" (778) x 7" (778) x 3/8" (9.5) center frame with 7" (778) x 7" (778) x 1/4" (6.35) wings with 5" (127) x 7" (778) x 1/4" (6.35) bracing. (2) 9.5L 8 ply tubeless tires with 15" (381) x 6" (152) wheels and 6 bolt hubs	28 (711)	11,700 (5,307)	20.42 (6.23)

GENERAL

Model……..……..…….....7600 series
Frame Type .....Rigid double tube tool bar
Frame Dimensions in (mm)
Model 7610… Primary tube……..……...7 x 7 x 1/4 (778 x 778 x 6.35)
Secondary tube……..... 5 x 7 x 1/4 (127 x 778 x 6.35)
Model 7330... Primary tube, Center……..7 x 7 x 3/8 (778 x 778 x 9.53)
Primary tube, Wing……7 x 7 x 1/4 (778 x 778 x 6.35)
Secondary tube……..…….... 5 x 7 x 1/4 (127 x 778 x 6.35)
Working Widths ft (m)
Model 7610-20….....20 (6.10)
Model 7630-30 ….....……..……...30 (9.15)
Model 7630-30NT.....……..……...30 9.15)
Transport Width ft (m)
Model 7610-20.……..……..…20 (6.10)
Model 7630-30 (90° fold w/hyd markers)……20.42 (6.23)
Model 7630-30 (35° fold) ….....……..……..15.75 (4.80)
Weight lb (kg)
Row Unit……..……..……...750 (340)
Model 7610-20 ….....……..……...7,250 (3,289)
Model 7630-30 (35° fold) ……..……..……...11,700 (5,307)
Model 7630-30 (90° fold w/hyd markers) ....……..……12,720 (5,770)
Under Frame Clearance in (mm)……..……..……..28 (711)
Number of Rows
Model 7610-20....……8
Model 7630-30……....……12
Model 7630-30NT.....……12
Row Spacing in (mm)……..30 (190.50)
Wheels
Stabilizer Wheels……...Quantity, two, hand ratchet adjustable positioning
Size in (mm) ……..……..15 x 6 (152 x 381)
Wheel hubs in (mm)……..……...2 (51 mm) five bolt
Tires in (mm)……..……..……tubeless, 9.5L 15 (241 x 381)
Ply rating……..……..……..8
Transport Lighting System.……..……..……Standard
Enhanced Turn Signal..……..……..Standard
Slow Moving Vehicle Sign.....Standard Equipment
Tractor Requirements
Hitch……..……Cat III & IV Three point
Horsepower Per Shank hp (KW)……..……..……..7-22 (12.7-16.4)
Hydraulic operating pressure
Minimum psi (KPA)……....……..1850 (15,514)
Maximum psi (KPA)……....……....……3000 (20,685)

GENERAL

Tractor Requirements

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Maximum psi (KPA)……..……..……3000 (20,685)

Strip Till Unit

Mounting

Mounting bracket attachment in (mm)

U-bolt, GR 5 Y/D, ……...1 x 8 x 9 x 8 1/16 (25.4 x 203 x 229 x 205)

Lock Washer, split type……..…..……...1 (25.4)

Hex Nut, GR 5 Y/D. ……..……...1 - 8 Full (25.4)

Parallel Linkage

Range of Motion in (mm) up/down from center …5 x 5 (127 x 127)

Linkage in (mm)……M1044 HR bar……..3/4 x 2 1/2 (19 x 63.50)

Bushings in (mm …….Hardened flange……..……...1 3/16 (30.17)

Pivot bolt in (mm)……..Hex bolt...……3/4-10 x 3 (19 x 76.20)

Lock Nut in (mm)……..Grade G……..……..3/4-10 (19)

Flat Washer in (mm)….Hardened..……...3/4 (19)

Down Pressure adjustment lbs (kg) ……..0 - 1300 (0 - 590)

Springs (2) in (mm) ....2 1/4 O.D x 3/8 wire x 9 2/5 (57 x 9.5 x 239)

Coulter Assembly

Coulter Blade in (mm) ..…… 24 x 1/4 (610 x 6.35)

Depth Band in (mm)...……15 x 4 (381 x 101.60)

Arbor bolt in (mm)……1 1/2 x 12 1/4 (38.10 x 311.15)

Bearings, triple lip relubeable in (mm)……..1 1/16 (26.23)

Row Cleaner

Tapered Tooth Steel Wheel (2), diameter in (mm)…..…..……13 (330)

Hubs (2), four bolt with…….. 2 Row NTN#DF0654LU Bearing

Blade Angle ..…….Fixed

Height Adjustment range in (mm) ….....6 (152.4), in 1/4 (6.35) increments

Shank

Mole Knife in (mm)...……1/2 x 2 1/2 x 15 1/2 (12.7 x 63.50 x 610)

Shank Holder in (mm)……...……1 1/4 x 4 x 24 (31.75 x 102 x 610)

Mole Point ……15° lift

Shear Bolt in (mm)……1/2 x 4 1/2 (12.7 x 114.3) GR 5

Shank Trip Clearance ……Unlimited

Shank Point Depth range in (mm) ……..4 to 10 (102 to 254)

Depth Adjustment increments in (mm)…… 2 (50.8)

Strip Till Unit (cont.)

Berm Blades (2)

Eight Wave Blade, in (mm)…..……..……..16 x .157 (404 x 4)
Hub, four bolt……..Tapered Roller Bearings
Vertical Adjustment range, in (mm)……6 (152)
Blade Angle Adjustment… ……0° to10°

Berm Reel

Concave bar design, in (mm)……..12 (305) diameter x 12 (305) width
Reel bars (10), in (mm)……1/4 x 11/4 12 (6.35 x 31.75 x 305)
Arbor, in (mm)..……1 1/2 x 12 (38.10 x 304.80)
Bearings (2) triple lip seal, in (mm)…..……...1 1/16 ID (26.99)
Down pressure spring adjustment range, lbs (kg) .....0 to 125 (0 to 56.70)
DP Spring, in (mm) ….……..2 1/4 O.D x 3/8 wire x 9 2/5 (57 x 9.5 x 239)

UNIVERSITY OF MINNESOTA EXTENSION

Management Tips Specific to Strip Tillage

- Match the width of the strip-till tool bar with that of the planter to ensure row alignment. Corn planted outside the strip is essentially no-till and may suffer in yield.
- Auto guidance systems can be helpful in ensuring alignment of the planter on the strips.
- In strip-till corn after corn, leave corn stubble standing for maximum air movement and less matting of residue, and build the strips between the previous crop rows.
- For the greatest soil warm-up and seed to soil contact, build strips in the fall rather than in the spring.
- In the cooler, fine-textured soils, strip tillage equipment should clear the berm to less than 10% residue for faster soil warm-up in the spring.
- Build a high enough berm in the fall so that it is at least one inch in height by planting. If the tilled area is level or there is a trough in the spring, the berm was not high enough for rapid drying.
- The economic advantages of strip-till are improved when banding P and K fertilizer with the fall strip tillage pass. This reduces trips across the field and allows the lower rates recommended for banded versus broadcast application.

COMPARISONS

STANDARD EQUIPMENT								
MFG.	Parallel Linkage	Coulter Blade Depth Band	Coulter Blade & Depth Band Scrapers	Row Cleaners	Berm Blades	Berm Reel	Tool Bar Gauge Wheels	Tow Hitch
SUNFLOWER	✓	✓	✓	✓	✓	✓	✓	✓
Orthman	✓	✓		✓	✓			
Bigham Bros.	✓	✓		✓	✓	✓		
Hiniker	✓	✓		✓				
JOHN DEERE				✓	✓		✓	✓
Case DMI					✓		✓	
Strip-Cat	✓			✓	✓	✓		

Sunflower 7600	Sunflower Advantage	Bingham Bros. 789-210

Construction

750 lbs (340 kg)

The Sunflower 7600 Series row weighs 750 pounds (340 kg). The weight of the Bigham row unit is not available but the weight difference is obvious. The robust construction of the 7600 will provide many more years of service.

Weight Not Available

Row Unit Mounting

Wrap-Around Mounts

Row units are mounted to the tool bar with two u-bolts but the similarities end there. The 7600 Series row unit is designed with a wrap-around mounting bracket to distribute the rotational force of the row unit over a greater area of the tool bar. On the Bigham Bros. unit, the force is concentrated on the mounting hardware.

Angle Iron Mounts

Coulter Blade

Wide Depth Band

The 7600 Series is equipped with a 24” (610 mm) coulter blade and 4” (102 mm) wide depth band. The coulter blades of the Bigham Brothers’ tool are 20”(508 mm) in diameter with 2” (51 mm) depth bands. The larger diameter is an advantage in cutting through tough residue. The wider depth band is far superior in maintaining the desired operating depth in softer soil conditions. The blade and depth band scrapers are standard equipment on the 7600 Series. Scrapers are not available on the Bigham tool.

Narrow Depth Band

Sunflower 7600	Sunflower Advantage	Bigham Bros. 789-210

Row Cleaners

17” (432 mm) Diameter Row Cleaners

Row cleaner adjustment is easily accomplished on the 7600 Series. Remove the bolt and move the row cleaner up or down, the next setting is only a 1/4” (6.35 mm) away. A tape measure will be needed to adjust the Bigham row cleaners. They’re held with a set screw to lock the mounting bar but there are no graduations on the bar. The larger diameter (17” 432 mm) spoke wheels of the 7600 Series are mounted closer to the coulter blade than the smaller (13” 330 mm) row cleaners of the Bigham Bros. unit. The larger diameter and position gives the 7600 series a performance advantage in heavy residue.

13” (330 mm) Diameter Row Cleaners

Shanks

Shear Bolt Protected Shank

Both tools offer a minimum disturbance shank. The 7600 series has depth adjustment in 2” (51 mm) increments by means of adjustment positions drilled into the shanks. The Bigham shank is held in position with two set screws. A tape measure will be helpful when adjusting the shank depth. The 7600 Series row units are protected from field hazards such as stones or stumps by a shear bolt; a feature not found in the Bigham Brothers’ tool.

Non Protected Shank

Sunflower 7600	Sunflower Advantage	Bigham Bros. 789-210

Berm Blades

Three Way
Blade Adjustment

Both brands feature large diameter wavy blades with vertical and angle adjustment. The 7600 Series includes graduations on the berm blade for quick reference when adjusting the vertical position of the blades. The Bigham tool does not have such references. There are fewer bolts to contend with on the 7600 Series in making berm blade adjustments. There are two on each blade on the 7600 compared to three on the Bigham Brothers' tool.

Two Way
Blade Adjustment

Berm Reels

Concave Reel and
Faster Reel Speed

Berm reels are an important component of all strip-till tools. The 7600 Series berm reel is concave to facilitate building a raised berm. The reel diameter is only 12" (305 mm) in comparison to the Bigham Brothers' reel at 16" (406 mm). The smaller diameter reel turns faster, mixing the soil more thoroughly to produce a better seed bed. The width of the reel is smaller too - 12" (305 mm) as opposed to the 17" (432 mm) width of the Bigham Brothers' reel. The narrower reel works within the area tilled by the preceding components of the strip-till tool. Wider reels can engage residue swept away by the row cleaners and deposited outside the area defined by the berm blades. This condition will impact the performance of the reel and the quality of the seed bed.

Straight Blades and
Slower Reel Speed

Sunflower

Floating Row Unit

Steel Depth Bands

Rigid Mounted Cleaners

Sunflower Advantage

Construction

The Nutri-Till tool is a double frame design comprised of 4” x 6” (102 x 152 mm) tubing with approximately 24” (610 mm) between the front and rear tubes. The rigid frame requires each of the components to have mechanisms generating down pressure or affording protection from obstructions. This requirement increases the complexity and wear of each component while decreasing their efficiency.

Coulter Blades

Large blades are common to both tools. The 7600 Series coulter assembly features a wide depth band to maintain operating depth and residue control. The depth band crushes the residue enhancing the performance of the row cleaners. With out a depth band or some other form of residue control the material can, and will, get hung up in the mounting arm and spring of the Nutri-Till coulter assembly.

Row Cleaners

Though similar in design and adjustment, the row cleaners differ greatly in performance. Parallel linkages are needed to provide the flexibility needed to protect the assembly from damage. This means the row cleaners have only the weight of the assembly to force heavy residue from the row and may ride over rather than sweep away heavy residue.

Case IH Nutri-Till

Rigid Double Frame

Spring Near Residue

Flexible Row Cleaners

Sunflower 7600	Sunflower Advantage	Case IH Nutri-Till

Shanks

Minimum Disturbance
Straight Shank

The Nutri-Till shanks have a curvature similar to a chisel plow. Chisel plow shanks are designed to stir and invert as much soil as possible. The minimum disturbance “straight knife” design of the 7600 Series shank and mole point fractures the soil with a lifting action without inverting it and bringing large clods to the surface.

Curved Chisel Plow
Style Shank

Berm Blades

Positive Positioned
Wavy Blades

The 7600 Series have horizontal, vertical and pitch adjustment as does the Nutri-Till. Due to the rigid frame design, vertical movement is necessary in the berm blades, as in every other component of the Nutri-Till, to provide protection from field hazards. Tough residue or large clods can over-power the down pressure of the springs, altering the alignment of the blades and resulting in the disruption of a uniform berm. Lacking the self-cleaning characteristics of wavy blades, the smooth blades of the Nutri-Till are also more apt to experience the build up of wet soils.

Spring Cushioned
Smooth Blades

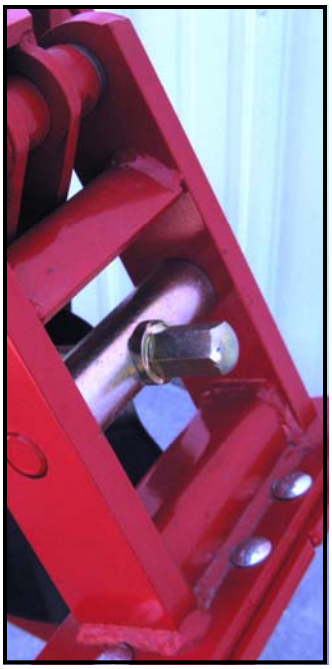
Sunflower 7600 Series	Sunflower Advantage	Case IH Nutri-Till

Berm Reels

Faster Reel Speed

The 7600 Series and Nutri-Till share the concept of concave blades in the design of the berm reels. The 7600 Series berm reels are a smaller diameter, 12” vs. 14” (305 vs. 356 mm), and turn faster than the Nutri-Till reels. The increased speed of the smaller diameter reel and a higher crossbar population produces a more efficient berm reel. They have clod size reduction capabilities and superior separation of solids and fines in comparison with the larger reel with fewer blades.

Fewer Reel Bars



Range of Down-Pressure Adjustment

Each of the 7600 Series berm reels have a single point of down pressure adjustment with a full range, 0 to 125 pounds (0 to 56.70 kg), of pressure available. In contrast, the Nutri-Till row units are limited to pre-set down pressures with only three spring positions and two mounting arm positions. Down pressure variations are obtained by removing the bolts, repositioning the upper mounting bracket of the down pressure spring or repositioning the berm reel mounting arm. Not only is the removal of nuts and bolts a time consuming and clumsy system, the “just right” down pressure may not be attainable for current field conditions.

Fixed Down-Pressure Settings

Sunflower 7600	Sunflower Advantage	Twin Diamond Strip Cat

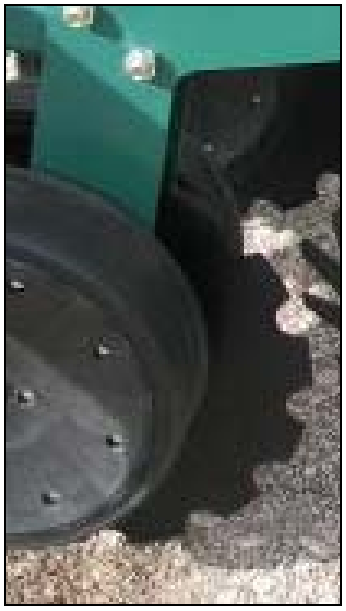
Construction

The Twin Diamond Strip Cat row unit has parallel linkage and spring down pressure as does the 7600 Series. The Sunflower design has a greater durability factor providing dividends in longevity.

Coulter Blade

The Sunflower 24” (610 mm) smooth blade is larger than the 20” (508 mm). The leverage factor of the larger diameter blade makes it more effective in cutting residue. Also, the smooth edged blade will be cutting residue long after the lobes of the notched blade dull and begin pushing the residue into the soil rather than cutting it. The coulter blade assemblies of both tools feature depth control in the form of wheels or bands near the coulter blade. The 7600 Series coulter assembly features a wide steel depth band as opposed to the rubber tires used by the Strip-Cat. Because of the space required to mount the coulter blade to the frame, the tires are not tight to the blade as is the depth band of the 7600 Series. This gap could be problematic in some field conditions.

24” Spherical Blade



20” Notched Coulter

Row Cleaners

Larger diameter (17” 432 mm vs. 13” 330 mm) spoke wheels and the mounting of the row cleaners closer to the coulter blade give the 7600 Series a performance advantage in heavy residue.

17” Row Cleaners

13” Row Cleaners

Sunflower 7600 Series	Sunflower Advantage	Twin Diamond Strip Cat

Rigid Mount
Three Adjustments

BERM BLADES

The self-cleaning berm blades of the 7600 series can be adjusted both horizontally and vertically. The angle can be adjusted up to ten degrees. The Strip-Cat berm blades have angle but lack horizontal adjustment and are under constant spring down pressure. Tough residue or large clods can overpower the down pressure of the springs and interrupt berm construction.

Spring Mount
One Adjustment

Better Material Flow

Berm Reels

Both tools have spring loaded berm reels. The elevated pivot point of the reel mounting arms of the 7600 Series is high and out of the way. This allows free flow of soil from the berm blades. Both options of berm attachments for the Strip-Cat are mounted low and close to the material flow from the berm blades. The reel mounting of the Strip-Cat could benefit from a camber similar to the 7600 Series reels to decrease rolling resistance and stress to the mountings.

Berm Reels
or
Press Wheels

Sunflower Advantage

Summary

The 7600 Series Strip-Till Tool embodies the best design available for each of the system's components. From the heavy duty construction of the tool bar to the seed bed conditioning of the berm reels the features of the 7600 Series exceed the competition.

While no tillage tool is perfect, hopefully these head to head comparisons show the design and performance advantages of the 7600 Series Strip-Till System.

Key selling points:

- H.D. tool bar and row frames
- Parallel linkage
- Large diameter coulters
- Steel depth bands with scrapers
- Row unit with "built-in" rock protection
- Rigidly mounted soil-moving components
- Large diameter row cleaners and berm blades
- Aggressive concave berm reels
- Ease of adjustments
- Minimal daily servicing
- Sunflower's quality design and manufacturing capabilities
- 3 year limited warranty