GLEANER

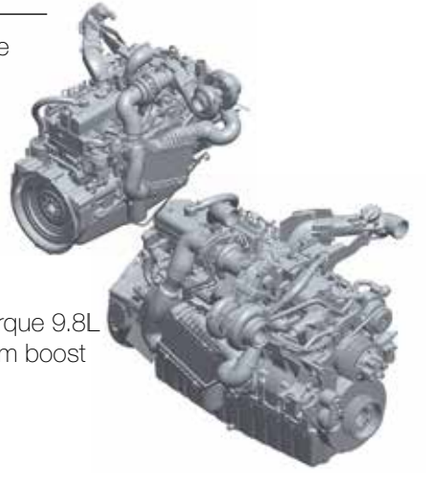
Transverse vs. Axial Competitive Comparison

New AGCO Power Engines

The S68 features a new twin turbocharged fuel-efficient, high-torque 8.4L AGCO Power engine delivering 322 rated horsepower and maximum boost horsepower of 398 horsepower.

The S78 features a new twin turbocharged, fuel-efficient, high-torque 9.8L AGCO Power engine delivering 375 rated horsepower and an awesome maximum boost horsepower of 451 horsepower.

The S88 features the same twin turbocharged, fuel-efficient high-torque 9.8L AGCO Power engine delivering 430 rated horsepower and maximum boost horsepower of 471 horsepower.



New XR two-speed hydro transmission

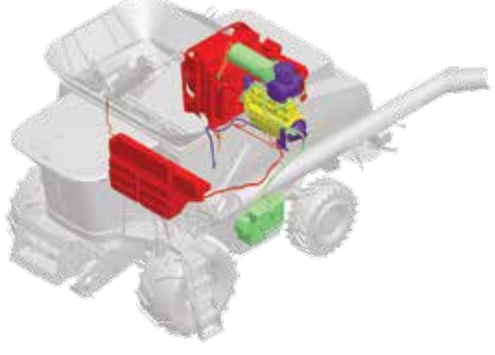
All S8 models feature an optional XR™ two-speed hydro feature that provides greater climbing ability on hills and convenient on the go shifts. The two-speed on the go shift is operated by a convenient push button from the right-hand console. The two-speed hydro features a 30% larger hydro motor.

New DuraGuard two-speed rotor gearbox

All S8 models feature a newly designed heavy-duty DuraGuard™ two-speed rotor gearbox with larger sheave, bearings and belt built for the higher demands of the S88 machine. It features a wider overlap on rotor speeds and lets operators run on the high side of the low range in a lot of crops for maximum efficiency. It also features reversing capability.

New 230-gallon fuel capacity

All S8 models feature a new 230-gallon fuel tank, a 53% increase to keep you in the field longer between fill-ups for more productivity.



Gleaner vs. Case IH

Make/Model	GL S68	CIH 6130	GL S78	CIH 7230	GL S88	CIH 8230
Class	6	6	7	7	8	8
Horsepower (hp)	322	320	375	380	430	450
Maximum boost horsepower (hp)	398	380	451	440	471	510
Engine displacement (L)	8.4	8.7	9.8	8.7	9.8	12.9
Rated speed (rpm)	2,100	2,100	2,100	2,100	2,100	2,100
Cooling System						
Maintenance	Reverse Cooling fan	Not available	Reverse Cooling fan	Not available	Reverse Cooling fan	Not available
Cleaning required	No	Yes	No	Yes	No	Yes
Variable fan pitch feature available	Yes	No	Yes	No	Yes	No
Average power savings @ 80°F (hp)	36	None	36	None	36	None
Processor						
Type	Natural Flow Feeding	Axial w/ flighting	Natural Flow Feeding	Axial w/ beater	Natural Flow Feeding	Axial w/ beater
Rotor length (in)	90	102.8	90	103.3	90	110
Degrees of threshing/separation	360	156	360	180	360	180
Threshing & separation area (in²)	6,047	Not Published	6,047	Not published	6,047	Not published
Cleaning area (in²)	7,729	7,947	7,729	10,075	7,729	10,075
Cleaning method	Two-stage	Single-stage	Two-stage	Single-stage	Two-stage	Single-stage
Accelerator roll technology	Yes	No	Yes	No	Yes	No
% of cleaning performed on shoe	66% @ rolls; 34% @ shoe	100% @ shoe	66% @ rolls; 34% @ shoe	100% @ shoe	66% @ rolls; 34% @ shoe	100% @ shoe
Slope sensitivity	No, up to 23+% slopes	Yes	No, up to 23+% slopes	12%	No, up to 23+% slopes	12%
Approx. power required for straw chopper (hp)	40	80-90	40	80-90	40	80-90

Advantages

The higher horsepower rating is lost with higher weight and parasitic loss of the machine.

Combine requires periodic cleaning of radiator vs. no cleaning on reverse cooling.

Gleaner is the only combine with a variable pitch fan that can save 66% of power at 80°F outside ambient temperature. This translates to a 36 horsepower savings at this temperature.

Gleaner's flat, even crop mat means the crop doesn't have to change direction to accommodate the rotor. All axial designs have a high wear area as the crop changes direction into rotor intake. The beater in the CIH 7230 and 8230 can break up cob and damage grain.

The Gleaner 360-degree threshing and separation is substantially greater than CIH's 156° or 180° threshing and separator grate wrap at the same 30" rotor diameter.

With Gleaner, 66% of the cleaning is done at the accelerator rolls of our exclusive 2-stage cleaning system. Our shoe is a secondary means not a primary as in the CIH where 100% has to be cleaned at the shoe. Our accelerator rolls direct all of the crop through the high air blast to the front of the cascade pan in the same location every time. Over 40+% of the 7230 and 8230 grain pan is solid at the front and is counted as sieve area which never gets any air so it does no functional cleaning. With the Gleaner, 100% of the shoe is receiving air from the upper air blast off of the accelerator rolls and the pneumatic area of the shoe.

The CIH 7230 and 8230 have a self-leveling shoe that is mechanical, can wear out and only levels to 12% slopes. Gleaner accelerator rolls can reduce slope sensitivity up to 23+%.

Gleaner vs. Case IH

Make/Model	GL S68	CIH 6130	GL S78	CIH 7230	GL S88	CIH 8230
Grain Handling						
Grain bin capacity	390 bu. standard	300 bu., no option	390 bu. standard	315 bu., no option	390 bu. standard	350 bu., no option
Power-fold bin extensions	Standard	Optional	Standard	Optional	Standard	Optional
Average unloading rates	4.0 bu./sec.	3.0 bu./sec.	4.0 bu./sec.	3.6 bu./sec.	4.0 bu./sec.	3.6 bu./sec.
Time to unload grain bin (sec)	98	100	98	87.5	98	87.5
Unloader design	2-auger swivel	3-auger turret	2-auger swivel	3-auger turret	2-auger swivel	3-auger turret
Construction & Weights						
Mainframe construction	Unitized, welded	Bolt-on	Unitized, welded	Bolt-on	Unitized, welded	Bolt-on
Straight-through shafts	Yes	No, 90° gearboxes	Yes	CVT drive gearboxes	Yes	CVT drive gearboxes
Operating weight - 2WD (lbs.)†	33,923	40,276	34,223	43,288	34,233	43,988
Power required to move operating weight difference (hp)	N/A	12	N/A	17	N/A	19
Weight of machine w/header and full grain bin (lbs.)‡	63,093	64,924	64,233	69,249	64,973	72,463

† Operating weight is weight of machine with tires; full tank of fuel. ‡ As equipped with 30' draper header (Class 6), 35' draper header (Class 7) and 40' draper header (Class 8).

Advantages

30% larger grain tank on S68 vs.CIH 6130 and 23% larger on the S78 vs.CIH 7230. Gleaner has largest on any class 6/7 combine. S88 is 11% larger vs. CIH 8230.

33% faster unloading rate on S68 vs. CIH 6130; 11% faster unloading on S87/S88 vs. CIH7230/CIH8230.

Gleaner faster average unloading rate can unload the largest grain bin in the world in just over a minute and a half.

Less wear, less horsepower required and less grain damage with Gleaner's shallow 29° angle from clean grain cross auger to unloading auger.

The Gleaner frame is stronger and lighter due to its exclusive welded unitized frame.

Gleaner is more efficient and drives are easier to service.

Unlike Gleaner, CaseIH combines have a weight issue and consumes 19 hp. of its available horsepower just moving the bare combine weight difference of the 8230 through the field on a flat surface. Wet ground and hills compounds this issue. Though smaller, the CIH 7230 platform still consumes 17 horsepower more of its available horsepower versus the S78 and the 6130 consumes 12 more horsepower .

Gleaner vs. John Deere

Make/Model	GL S68	JD S660	GL S78	JD S670	GL S88	JD S680
Class	6	6	7	7	8	8
Horsepower (hp)	322	320	375	373	430	473
Maximum boost horsepower (hp)	398	365	451	425	471	540
Engine displacement (L)	8.4	9.0	9.8	9.0	9.8	13.5
Rated speed (rpm)	2,100	2,200	2,100	2,200	2,100	2,100
Cooling System						
Maintenance	Reverse Cooling fan	Air scoop	Reverse Cooling fan	Air scoop	Reverse Cooling fan	Air scoop
Cleaning required	No	Yes	No	Yes	No	Yes
Variable fan pitch feature available	Yes	No	Yes	No	Yes	No
Average power savings @ 80°F (hp)	36	None	36	None	36	None
Processor						
Type	Natural Flow Feeding	Axial w/ beater	Natural Flow Feeding	Axial w/ beater	Natural Flow Feeding	Axial w/ beater
Rotor length (in)	90	123	90	123	90	123
Degrees of threshing/separation	360	180	360	180	360	180
Threshing & separation area (in²)	6,047	4,095	6,047	4,095	6,047	4,095
Cleaning area (in²)	7,729	7,589	7,729	7,589	7,729	8,711
Cleaning method	Two-stage	Single-stage	Two-stage	Single-stage	Two-stage	Single-stage
Accelerator roll technology	Yes	No	Yes	No	Yes	No
% of cleaning on performed on shoe	66% @ rolls; 34% @ shoe	100% @ shoe	66% @ rolls; 34% @ shoe	100% @ shoe	66% @ rolls; 34% @ shoe	100% @ shoe
Slope sensitivity	No, up to 23+% slopes	Yes	No, up to 23+% slopes	Yes	No, up to 23+% slopes	Yes
Approx. power required for straw chopper (hp)	40	80-90	40	80-90	40	80-90

Advantages

Gleaner provides a higher percentage of horsepower to the seperator than the Class 6 and Class 7 John Deere combines relative to weight and less efficient drives. The higher horsepower rating with the John Deere S680 is lost with higher weight and parasitic loss of the machine.

John Deere's air scoop requires periodic cleaning of radiator vs. no cleaning with Gleaner's reverse cooling.

Gleaner is the only combine with a variable pitch fan which can save 66% of power at 80°F outside ambient temperature. The savings can amount to 36 horsepower.

Gleaner's flat, even crop mat means the crop doesn't have to change direction. All axial designs have a high wear area as the crop changes direction into rotor intake. The beater in the John Deere can break up cob and damage grain.

The 360-degree threshing and separation with the Gleaner provides almost 48% more area than John Deere.

John Deere had to lengthen their shoe to compensate for no self-leveling device.

Gleaner's cleaning area is not only slightly larger on the S68 and S78, but we don't rely on our shoe to do all the cleaning. In fact, we do 66% of our cleaning at the accelerator rolls.

Gleaner vs. John Deere

Make/Model	GL S68	JD S660	GL S78	JD S670	GL S88	JD S680
Grain Handling						
Grain bin capacity	390 bu. standard	300 bu.	390 bu. standard	300 bu.	390 bu. standard	400 bu.
Power-fold bin extensions	Standard	Optional	Standard	Optional	Standard	Standard
Average unloading rates	4.0 bu./sec.	3.3 bu./sec.	4.0 bu./sec.	3.3 bu./sec.	4.0 bu./sec.	3.3 bu./sec.
Time to unload grain bin (sec)	98	91	98	91	98	91
Unloader design	2-auger swivel	3-auger turret	2-auger swivel	3-auger turret	2-auger swivel	3-auger turret
Construction & Weights						
Mainframe construction	Unitized, welded	Bolt-on	Unitized, welded	Bolt-on	Unitized, welded	Bolt-on
Straight-through shafts	Yes	No, 90° gear boxes	Yes	No, 90° gear boxes	Yes	No, 90° gear boxes
Operating weight - 2WD (lbs.)†	33,923	44,077	34,223	45,930	34,223	50,649
Power required to move operating weight difference (hp)	N/A	20	N/A	23	N/A	32
Weight of machine w/header and full grain bin (lbs.)‡	63,093	67,384	64,233	71,613	64,973	83,016

† Operating weight is weight of machine with tires; full tank of fuel. ‡ As equipped with 30’ draper header (Class 6), 35’ draper header (Class 7) and 40’ draper header (Class 8).

Advantages

The grain bin on Gleaner S68/S78 is 30% larger than the John Deere S660/S670. Gleaner has largest grain bin on any Class 6/7 combine.

Gleaner has a 21% faster unloading rate.

Gleaner has a faster average unloading rate that can unload the largest grain bin in the world in just over a minute and a half.

Less wear, less horsepower required and less grain damage with Gleaner’s shallow 29° angle from clean grain cross auger to unloader auger.

The Gleaner frame is stronger and lighter due to its exclusive welded unitized frame.

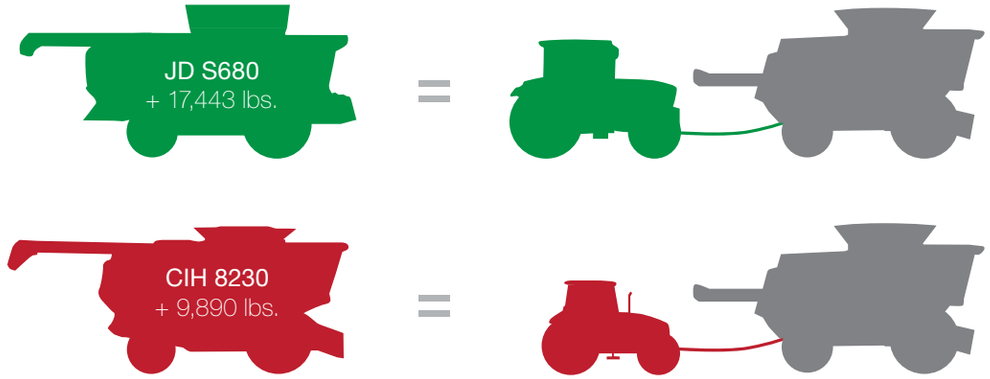
Gleaner is more efficient and drives are easier to service.

Unlike Gleaner, John Deere has a huge compaction issue and consumes a large amount of horsepower just to move it through the field on a flat surface. Wet ground and hills compounds this issue.

Efficiency

Extra weight requires more horsepower to achieve the same result as a lighter machine. Unfortunately, the John Deere S680[1] weighs almost 17,500 lbs. more than a Gleaner S88. This extra weight requires 34 horsepower just to move the laden weight difference of the two machines through the field. That's the equivalent of pulling a John Deere 6210R, MFWD tractor behind your Gleaner.

For the CaseIH 8230 you'll have to hook up a CaseIH Farmall 140A, two-wheel drive tractor with cab behind your Gleaner to travel up every hill, through every mud puddle and down every road.



Efficiency comparison

Class 6 Combines

Brand/Models‡	Operating Weight (lbs.)	Header Weight (30' draper) (lbs.)	Weight w/ Header (lbs.)	Difference vs. Gleaner (lbs.)	Power Required† (hp)	Grain Tank Capacity (bu.)	Grain Weight[1] (lbs.)	Total Weight (lbs.)
Gleaner S68	33,923	5,770	39,693	NA	NA	390	23,400	63,093
JD S660	44,077	5,307	49,384	9,691	**19**	300	18,000	67,384
CIH 6130	40,276	6,648	46,924	9,234	14	300	18,000	64,924

Class 7 Combines

Brand/Models‡	Operating Weight (lbs.)	Header Weight (35' draper) (lbs.)	Weight w/ Header (lbs.)	Difference vs. Gleaner (lbs.)	Power Required† (hp)	Grain Tank Capacity (bu.)	Grain Weight[1] (lbs.)	Total Weight (lbs.)
Gleaner S78	34,223	6,610	40,833	NA	NA	390	23,400	64,233
JD S670	45,930	7,683	53,613	12,780	**25**	300	18,000	71,613
CIH 7230	43,288	7,061	50,349	9,516	19	315	18,900	69,249

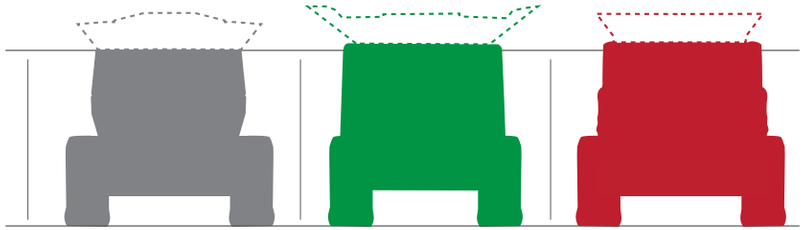
Class 8 Combines

Brand/Models‡	Operating Weight (lbs.)	Header Weight (40' draper) (lbs.)	Weight w/ Header (lbs.)	Difference vs. Gleaner (lbs.)	Power Required† (hp)	Grain Tank Capacity (bu.)	Grain Weight[1] (lbs.)	Total Weight (lbs.)
Gleaner S88	34,223	7,350	41,573	NA	NA	390	23,400	64,973
JD S680	50,649	8,367	59,016	17,443	**34**	400	24,000	83,016
CIH 8230	43,988	7,475	51,463	9,890	19	350	21,000	72,463

NOTE: Dimensions taken from actual machines on Holtgreven digital scales within 1% accuracy, similar equipped tires and full tank of fuel. ‡ Models compared are equipped with 2-wheel-drive. 1 Estimated @ 60 lbs. per bushel @ 17% moisture (soybeans). † Horsepower requirement achieved by multiplying an engineering calculation of rolling resistance (CRR) (an estimated 0.00196) by the weight difference in the Difference vs. Gleaner column.

Transport height

Even with one of the largest grain bin capacities on any combine in the industry, the Gleaner S68, S78 and S88 unique standard power foldable 390-bushel bin extensions fold down in under 20 seconds with the flip of a switch to an overall height of 12.41 feet. This compactness can make a big difference when transporting or storing the combine.



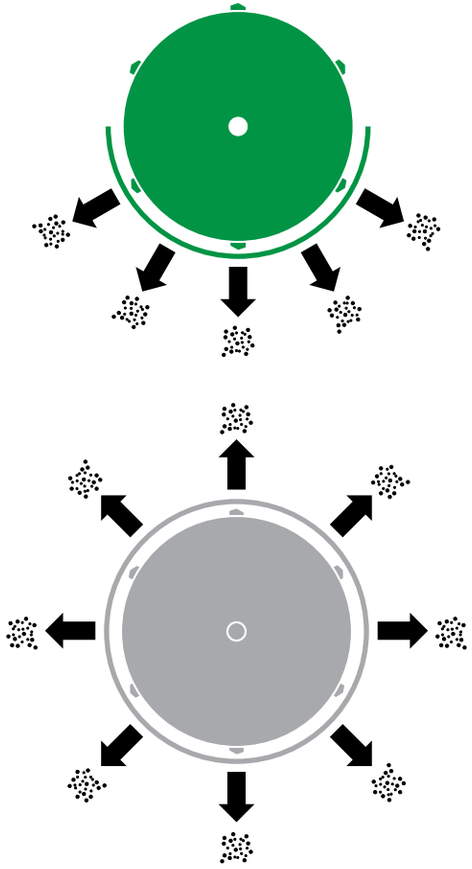
	Gleaner S78	JD S670	CaseIH 7230
	390 bu.	300 bu.	315 bu.
Bin extensions in transport position	12.41 ft.	12.69 ft.	12.91 ft.
Bin extensions in operating position	14.16 ft.	15.5 ft.	14.16 ft.

Center of gravity

The rotor in a Gleaner sits in the center of the combine. This allows the grain tank to sit low and wrap around the processor. The result is more grain bin capacity that provides a low center of gravity in the machine. Our competitors must accommodate their axial rotor in order to fit their grain bin in the combine. This places the weight higher creating a higher center of gravity and smaller grain bin capacity.

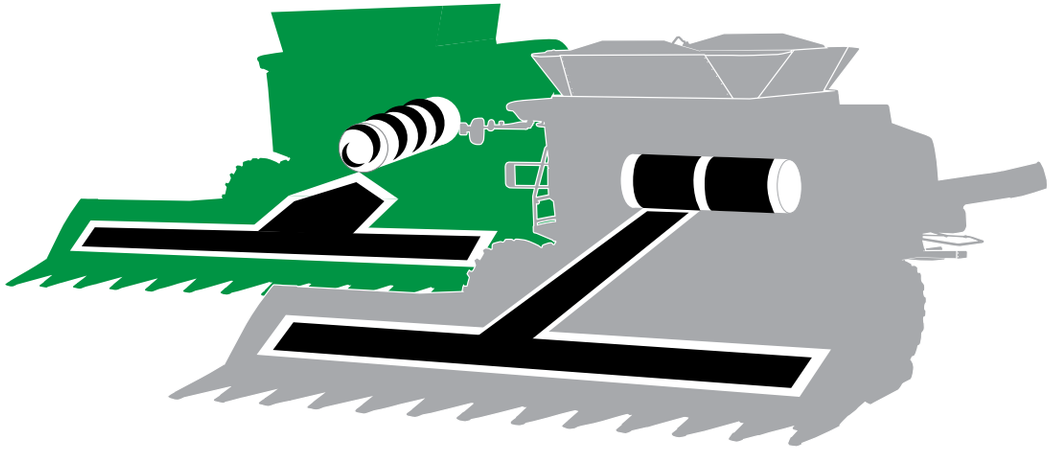
Threshing area

Once crop enters our rotor and threshing begins, it separates and falls from the rotor through a 360-degree cage. The wrap of this cage is important because it is crucial that crop be threshed only long enough to release it from heads, pods or cobs. Crop that remains in the threshing area can be damaged. Our 360-degree wrap means grain exits the rotor cage once it is threshed. Our competitors' designs are closed on top, keeping free grain inside where it continues to contact the rotor's threshing elements.



Natural Flow

We call our feeding system Natural Flow™ because the crop material flows straight into the combine, straight into and around the rotor and straight out the back. Our competitors shift the crop's path and change its direction, requiring more horsepower to do the same threshing and separating.

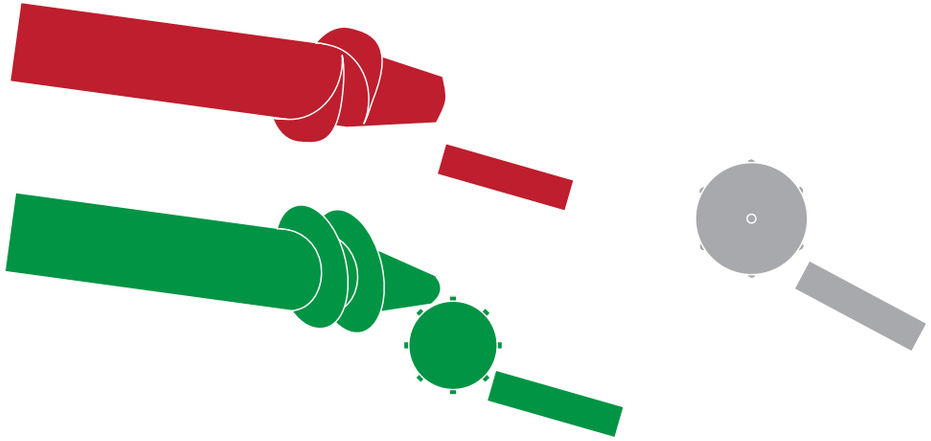


Feeder house

While a Gleaner has a narrower feeder house than other combines, the opening that feeds the rotor is actually wider. This is because Gleaner does not narrow or compress the crop mat as this would cause wear, bunching and crop damage.

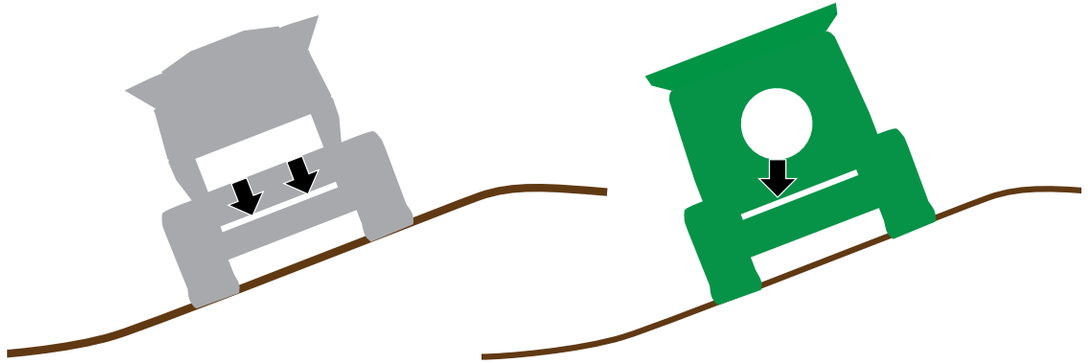
Feeding

Our competitors' designs, which include either a beater or "elephant ears," have to stuff, bunch and sheer the crop mat in order to feed their rotor. Our rotor is fed naturally and directly to ensure even and consistent threshing.



Slope sensitivity

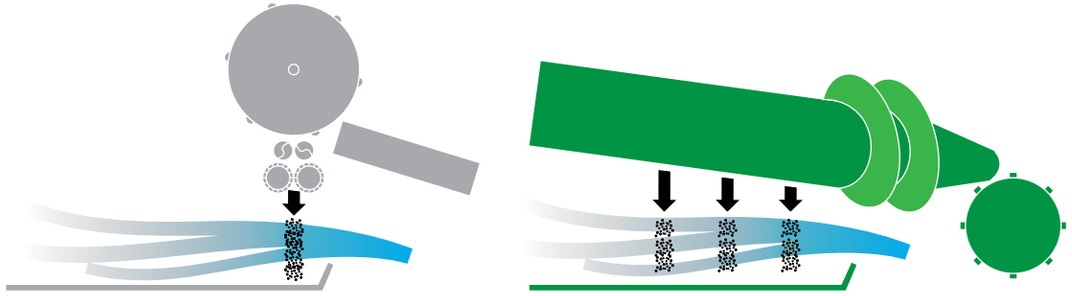
A Gleaner propels grain through the air blast and onto the grain pan. Because Gleaner does not rely on gravity to move the grain, the direction of the grain stays consistent, even on slopes up to 23+%. Competitors require the expense, complexity and wear of self-leveling shoes or undercarriages to match Gleaner.



Air velocity

Our transverse system drops material in the same position parallel to the fan, which means every piece of grain is hit with the same velocity of air. With an axial rotor, grain can drop at any point on the rotor, meaning grain that drops early is hit with one air velocity and grain that drops later with another. Gleaner's ability to preclean the grain before the shoe and use the shoe as a highly effective secondary cleaning system is why it can obtain such clean grain with low loss levels.

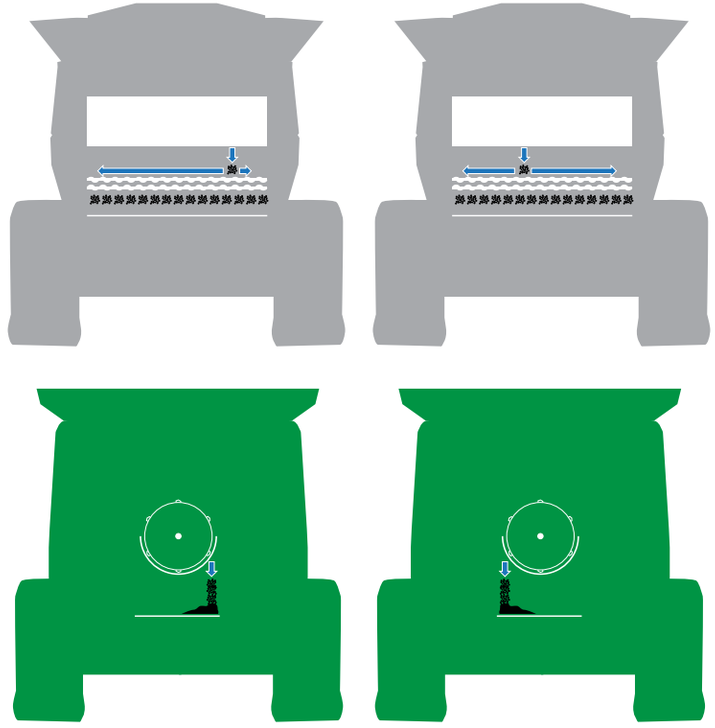
The same issue of where grain drops from the rotor affects the effectiveness of the shoe. Gleaner always drops its grain and material in the same position. Axial combines tend to distribute grain unevenly to the cleaning shoe, which can cause grain loss out the back of the combine.



Shoe overload

Many axial combines, due to their concave design, tend to overload the cleaning shoe on one side of the machine. As the rear portion of the shoe becomes overloaded with grain and MOG (material other than grain), grain can be carried out the back of the combine.

With Gleaner, after grain falls from the processor, a set of distribution augers keeps the crop mat consistent. The crop is then propelled by the accelerator rolls through an air blast at four times the speed of free fall and onto the grain pan. These distribution augers ensure a uniform ribbon of crop feeding into the remainder of the cleaning system, no matter where crop falls from the processor.

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