

UN
QUÉBEC
POUR TOUS



**Attention à la pression au champ,
comment réduire la compaction**

Par Bruno Garon, ing.

10 et 11 février 2014

Québec 

Mes sources
Avoiding Soil Compaction




Magazine :
profi en Angleterre

<http://www.profi.com/>

PENNSSTATE
 College of Agricultural Sciences
Agricultural Research and Cooperative Extension

Comment se fait la compaction?

Si le sol baisse de 10 cm, c'est l'air qui est parti, car l'eau et le sol ne se compressent pas.

Air

Eau

Sol



Eau

Sol

L'impact de la compaction

Les coûts estimés de la compaction sont de l'ordre de plus de 9 Billons de dollars aux États-Unis seulement.

En 1985, on estimait les coûts à la ferme de la compaction des sols à plus de 100 millions de dollars par année au Québec

- Mauvais drainage
- Baisse de rendement
- Taux d'humidité à la récolte plus élevé
- Augmentation de la consommation de carburant (travail du sol profond)

Source : http://www.mapaq.gouv.qc.ca/SiteCollectionDocuments/Regions/Monteregie-Est/AV2011_2012/Conference_Nicolas_Dubuc.pdf

Diapositive 1

1

Pour modifier la date, cliquer sur Insertion, Date et heure puis changer la date fixe.

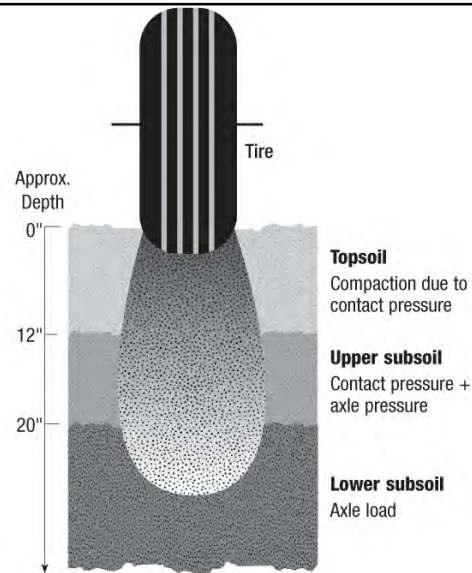
Anne-Marie Ouellet; 2013-03-13

Effet sur le sol

Surface
pression de contact

Haut du sous sol
Pression de contact et
pois par essieu

Sous sol profond
Poids pas essieu



Effet de la charge

Compaction en profondeur

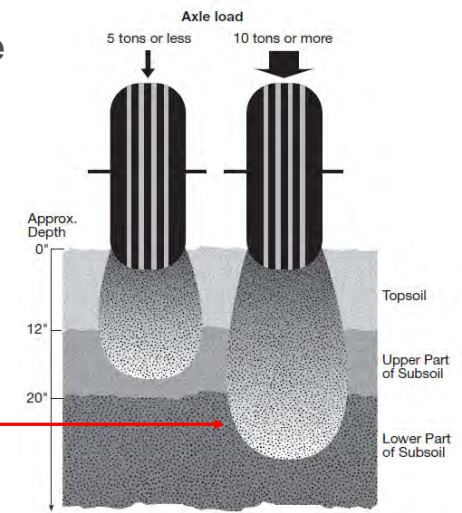


Figure 3. Low axle load causes compaction in the topsoil and upper part of subsoil only, whereas high axle load causes compaction in the lower subsoil as well.

La surface de contact

Roue étroite Vs large

Remarquer la différence de
coloration, densité des
points

Remarquer la compaction
en profondeur, c'est le
même

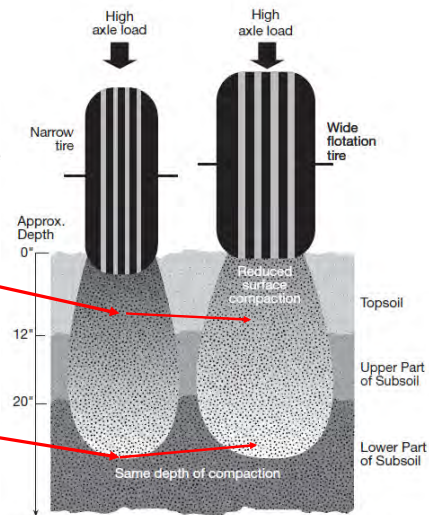


Figure 5. Increasing footprint reduces surface compaction but can still cause deep subsoil compaction if axle loads are high.

EFFET SUR SOL COMPACTÉ

Compaction concentrée
près de la zone
compactée

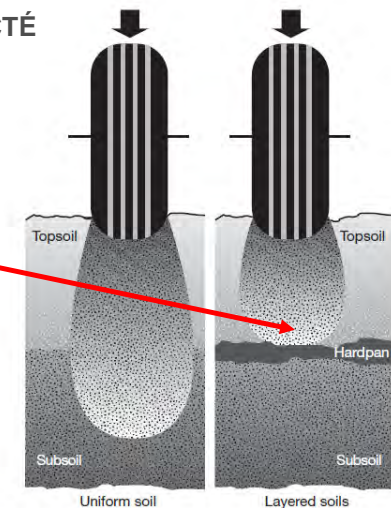
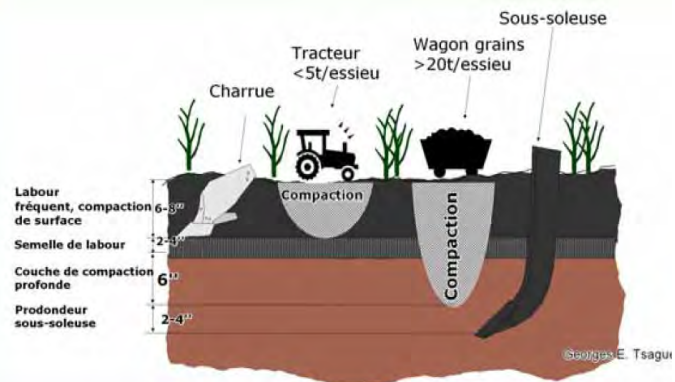


Figure 4. In a uniform soil, compaction is transmitted deep, whereas in a soil with a hardpan, compaction is concentrated above the hardpan.

Type de compaction



Source : http://www.agrireseau.qc.ca/agroenvironnement/documents/Tsagui_La%20compaction%20des%20sols.pdf

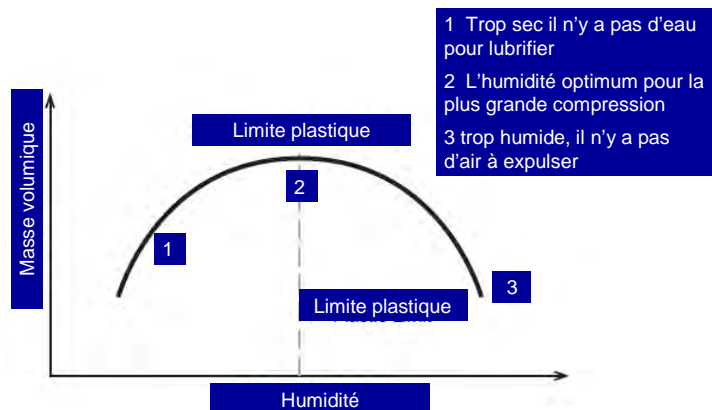
Poids de la machinerie

MACHINERIES	Poids à l'essieu (tonnes/essieu)
Tracteur, 2 roues motrices	5-7 tonnes
Tracteur, 4 roues motrices	7-13 tonnes
Moissonneuse 6 rangs, vide	10 tonnes
Épandeur de fumier liquide, 5000 gal, 3 essieux	11 tonnes
Moissonneuse 12 rangs, vide	18 tonnes
Wagon à grains rempli, 600 boisseaux, 1 essieu	20 tonnes
Moissonneuse 12 rangs, remplie	24 tonnes
Wagon à grains rempli, 1200 boisseaux, 1 essieu	40 tonnes

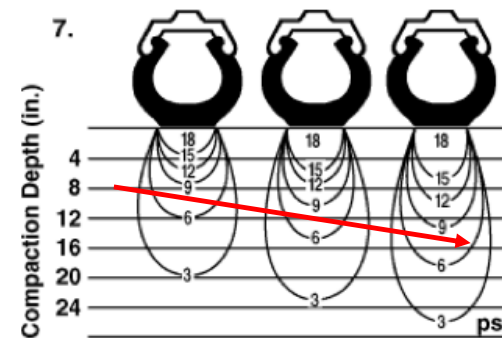
Adapté d'une étude de Bill Casady, Uni. Missouri

Poids moyen approximatif à l'essieu de diverses machineries agricoles

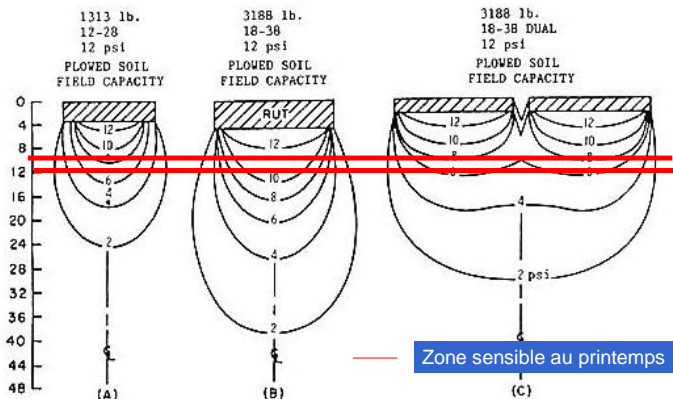
Importance de l'humidité



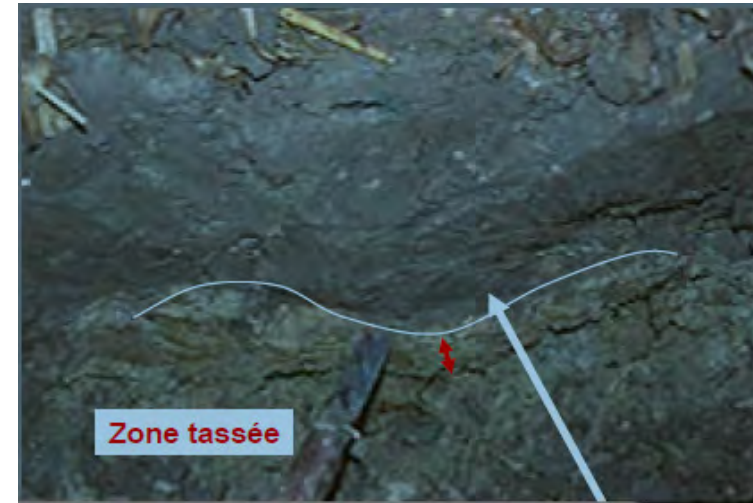
Pour une même charge, les isolignes de charges descendre plus profond dans les sols humides



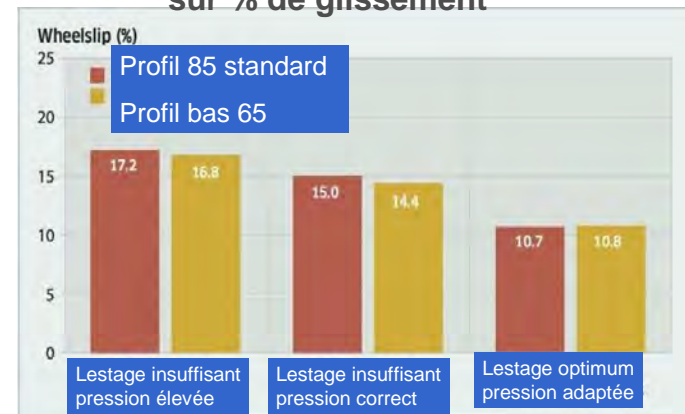
Si on entre trop tôt la compaction au printemps, les roues doubles produisent des zones imperméable deux fois plus larges.



Effet sur le sol

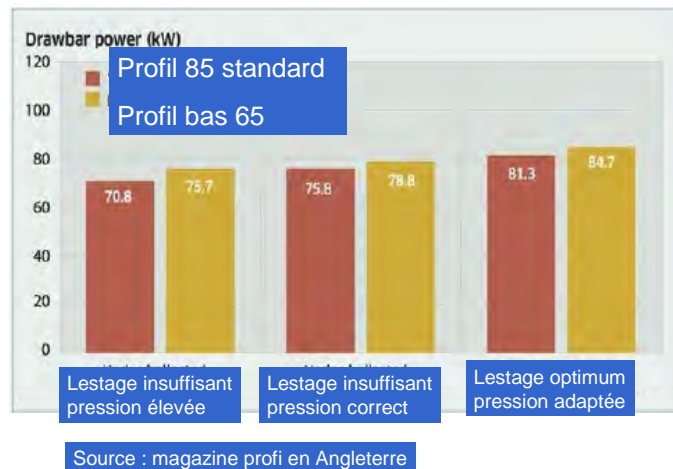


Effet du lestage et de la pression sur % de glissement

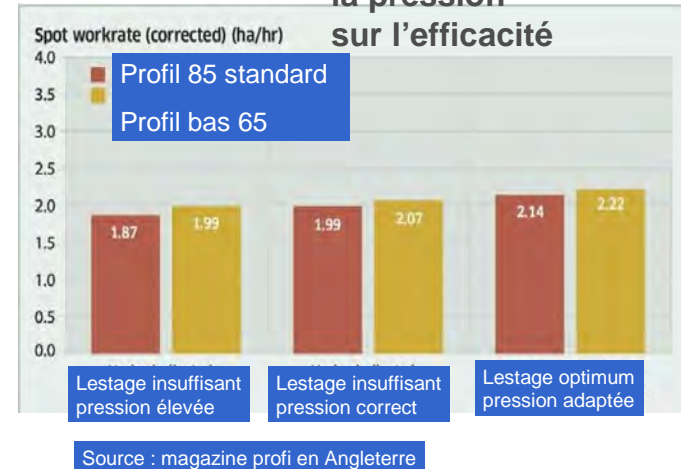


Source : magazine profi en Angleterre

Effet du lestage et de la pression sur l'efficacité



Effet du lestage et de la pression sur l'efficacité



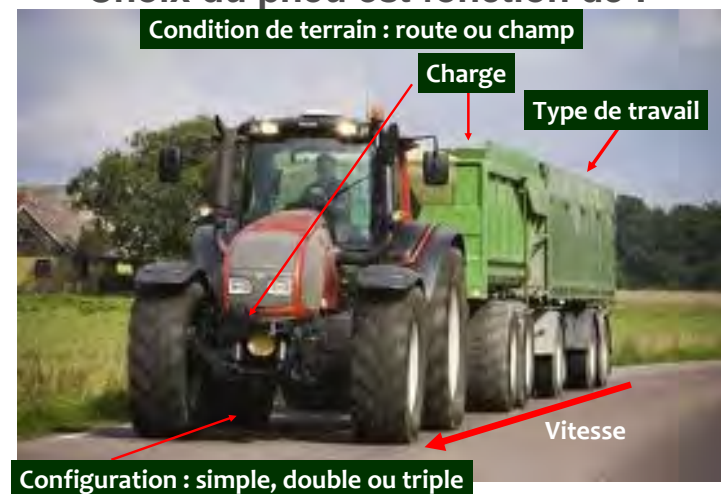
Comment prévenir la compaction

La gestion intégrée des sols
Les bonnes pratiques agricoles

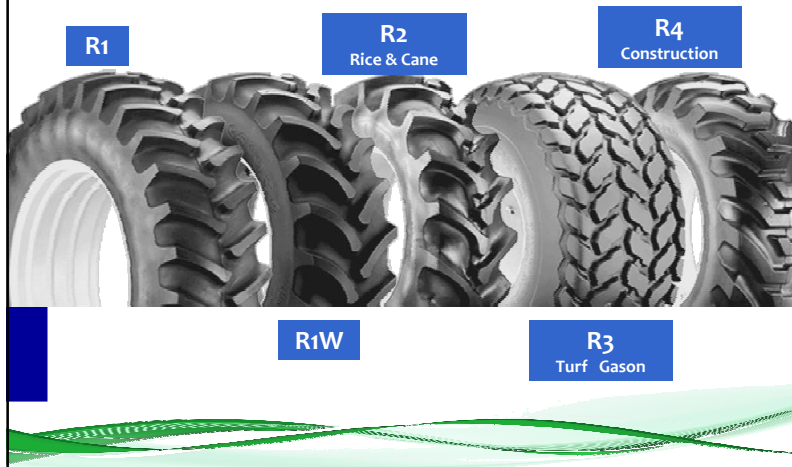
Commençons par la pression des pneus et l'équilibrage du tracteur, mais même si vous faites ses deux actions et que vous passez dans un sol trop humide, il y a un problème. Ce n'est pas une bonne pratique.

Max 4T/essieu et non 10 T

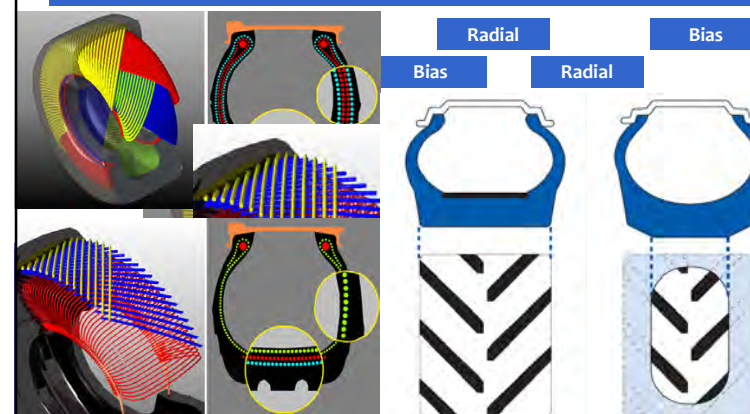
Choix du pneu est fonction de :



Les bandes de roulements des pneus



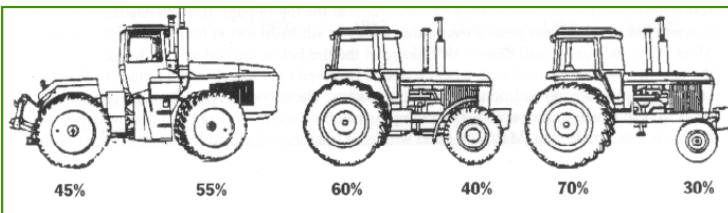
Bande de roulements des pneus



La réparation du poids du tracteur²

Essayons de tendre vers

Tracteurs	Trainée Avant/arrière	Semi-portée Avant/arrière	Portée Avant/arrière
2 roues	25 / 75 %	30 / 70 %	35 / 65 %
2 + 2	35 / 65 %	35 / 65 %	40 / 60 %
\$ roues	55 / 45 %	55/45 %	60 / 40 %



La pression au sol

La pression au sol = pression pneu + 2 lb/po²

↘ Pression pneu = Déformation du pneu radial

↗ surface de contact = ↘ pression au sol

Diapositive 23

2

Pour modifier le titre de la présentation et le sous-titre dans l'en-tête, cliquer sur Affichage, Masque puis Masque des diapositives.

Inscrire ensuite le nouveau titre et modifier ou supprimer, au besoin, le sous-titre.

Pour revenir à la diapositive, désactiver le mode masque.

Anne-Marie Ouellet; 2013-03-13

La pression des pneus

Quelques règles du pouce :

- Pour un pneu R1-W, trois barrettes au sol pour un contact adéquat



La pression des pneus

- Les côtés d'un pneu doivent se déformer, mais pas trop
- Un sur-gonflage de 20 % diminue la performance de plus de 30% et un sous gonflage de 20% diminue la performance de 26%.



Photo Nicolas Dubuc

Critère de vérification

800/70R38 173A8/173B TL MACHXBIB®									
MSPN : 72379 CAI : 296457									
Load per tire (single)									
30 mph 50 km/h	25 mph 40 km/h	20 mph 30 km/h	15 mph 20 km/h	25 mph Dual 40 km/h Dual	Pressure				
		6,830 lbs 3,100 kgs	8,070 lbs 3,660 kgs	5,820 lbs 2,550 kgs	6 psi 0.4 bar				
7,610 lbs 3,450 kgs	7,610 lbs 3,450 kgs	8,260 lbs 3,745 kgs	9,740 lbs 4,420 kgs	6,790 lbs 3,080 kgs	9 psi 0.6 bar				
8,950 lbs 4,060 kgs	8,950 lbs 4,060 kgs	9,670 lbs 4,385 kgs	11,420 lbs 5,180 kgs	7,950 lbs 3,605 kgs	12 psi 0.8 bar				
10,300 lbs 4,670 kgs	10,300 lbs 4,670 kgs	11,090 lbs 5,030 kgs	13,110 lbs 5,945 kgs	9,120 lbs 4,135 kgs	15 psi 1.0 bar				
11,640 lbs 5,280 kgs	11,640 lbs 5,280 kgs	12,510 lbs 5,675 kgs	14,780 lbs 6,705 kgs	10,280 lbs 4,665 kgs	17 psi 1.2 bar				
12,990 lbs 5,890 kgs	12,990 lbs 5,890 kgs	13,920 lbs 6,315 kgs	16,460 lbs 7,465 kgs	11,440 lbs 5,190 kgs	20 psi 1.4 bar				
14,330 lbs 6,500 kgs	14,330 lbs 6,500 kgs	15,340 lbs 6,960 kgs	18,140 lbs 8,230 kgs	12,610 lbs 5,720 kgs	23 psi 1.6 bar				
			19,820 lbs 8,990 kgs		26 psi 1.8 bar				
			20,660 lbs 9,370 kgs		28 psi 1.9 bar				
			21,500 lbs 9,750 kgs		29 psi 2.0 bar				
Tire Technical Data					Rims (preferred in bold)				
Unloaded Dimensions		Loaded Dimensions							
Overall Width	Overall Diameter	Loaded Radius	Rolling Circumference						
31.3 in 796 mm	81.6 in 2,073 mm	35.5 in 902 mm	240.7 in 6,114 mm		DW25B (A) MW25B (A) DW27B (A)				
Rolling Circumference Index 48					Tube MSPN				
Number of Lugs 19 x 2					Tube CAI				
					Minimum Dual/Triples Spacing				
Gross Flat Plate	Tire Weight	100% Tire Volume	Centerline Tread Depth						
720 sq in 4,645 sq cm	783 lbs 355 kgs	377.2 gals 1,428 liters	77/32nd 61 mm						

Critère de vérification

Beaucoup d'efforts

800/70R38 173A8/173B TL MACHXBIB®									
MSPN : 72379 CAI : 296457									
Load per tire (single)									
30 mph 50 km/h	25 mph 40 km/h	20 mph 30 km/h	15 mph 20 km/h	25 mph Dual 40 km/h Dual	Pressure				
		6,830 lbs 3,100 kgs	8,070 lbs 3,660 kgs	5,820 lbs 2,550 kgs	6 psi 0.4 bar				
7,610 lbs 3,450 kgs	7,610 lbs 3,450 kgs	8,260 lbs 3,745 kgs	9,740 lbs 4,420 kgs	6,790 lbs 3,080 kgs	9 psi 0.6 bar				
8,950 lbs 4,060 kgs	8,950 lbs 4,060 kgs	9,670 lbs 4,385 kgs	11,420 lbs 5,180 kgs	7,950 lbs 3,605 kgs	12 psi 0.8 bar				
10,300 lbs 4,670 kgs	10,300 lbs 4,670 kgs	11,090 lbs 5,030 kgs	13,110 lbs 5,945 kgs	9,120 lbs 4,135 kgs	15 psi 1.0 bar				
11,640 lbs 5,280 kgs	11,640 lbs 5,280 kgs	12,510 lbs 5,675 kgs	14,780 lbs 6,705 kgs	10,280 lbs 4,665 kgs	17 psi 1.2 bar				
12,990 lbs 5,890 kgs	12,990 lbs 5,890 kgs	13,920 lbs 6,315 kgs	16,460 lbs 7,465 kgs	11,440 lbs 5,190 kgs	20 psi 1.4 bar				
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Number of Lugs 19 x 2					Tube CAI				
					Minimum Dual/Triples Spacing				
Gross Flat Plate	Tire Weight	100% Tire Volume	Centerline Tread Depth						
720 sq in 4,645 sq cm	783 lbs 355 kgs	377.2 gals 1,428 liters	77/32nd 61 mm						

800/70R38		173A8/173B		TL MACHXBIB®		CAI : 296457	
MSPN : 72379							
Load per tire (single)							
30 mph	25 mph	20 mph	6 mph	25 mph Dual	Pressure		
50 km/h	40 km/h	30 km/h	10 km/h	40 km/h Dual			
		6,830 lbs	8,070 lbs	5,820 lbs	6 psi		
		3,100 kgs	3,660 kgs	2,550 kgs	0.4 bar		
		8,260 lbs	9,740 lbs	6,790 lbs	9 psi		
7.6 lbs	7,610 lbs	8,260 lbs	9,740 lbs	6,790 lbs	9 psi		
3,450 kgs	3,450 kgs	3,745 kgs	4,420 kgs	3,080 kgs	0.6 bar		
8,910 lbs	8,950 lbs	9,670 lbs	11,420 lbs	7,950 lbs	12 psi		
4,060 kgs	4,060 kgs	4,385 kgs	5,180 kgs	3,605 kgs	0.8 bar		
		10,300 lbs	10,300 lbs	11,090 lbs	13,110 lbs	9,120 lbs	15 psi
		4,670 kgs	4,670 kgs	5,030 kgs	5,945 kgs	4,135 kgs	1.0 bar
		11,640 lbs	11,640 lbs	12,510 lbs	14,780 lbs	10,280 lbs	17 psi
		5,280 kgs	5,280 kgs	5,675 kgs	6,705 kgs	4,665 kgs	1.2 bar
		12,990 lbs	12,990 lbs	13,920 lbs	16,450 lbs	11,440 lbs	20 psi
		5,890 kgs	5,890 kgs	6,315 kgs	7,465 kgs	5,190 kgs	1.4 bar
		14,330 lbs	14,330 lbs	15,340 lbs	18,140 lbs	12,610 lbs	23 psi
		6,500 kgs	6,500 kgs	6,960 kgs	8,230 kgs	5,720 kgs	1.6 bar
				19,820 lbs			26 psi
				8,990 kgs			1.8 bar
				20,660 lbs			28 psi
				9,370 kgs			1.9 bar
				21,500 lbs			29 psi
				9,750 kgs			2.0 bar

*All load values are for maximum indicated speeds at low torque.
 20 mph (30 km/h); high torque field work or max road speed.
 *All load values for ground slopes up to 20% (above 20% consult Michelin).

Tire Technical Data

Unloaded Dimensions			Loaded Dimensions		
Overall Width	Overall Diameter	Radius	Loaded Width	Loaded Diameter	Rolling Circumference
31.3 in	81.6 in	35.5 in	24.07 in	79.6 mm	2,073 mm
796 mm	2,073 mm	902 mm	611 mm		

Rolling Circumference index
46

Number of Lugs
19 x 2

Tube MSPN

Tube CAI

Minimum Dual/Flat Spacing

39.7 in

1,008 mm

Rolling Circumference index
46

Number of Lugs
19 x 2

Tube MSPN

Tube CAI

Minimum Dual/Flat Spacing

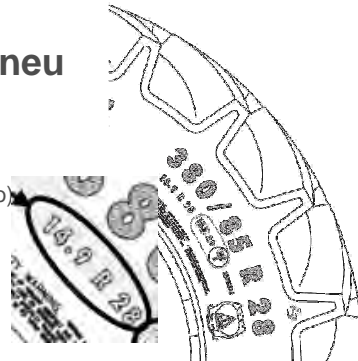
39.7 in

1,008 mm



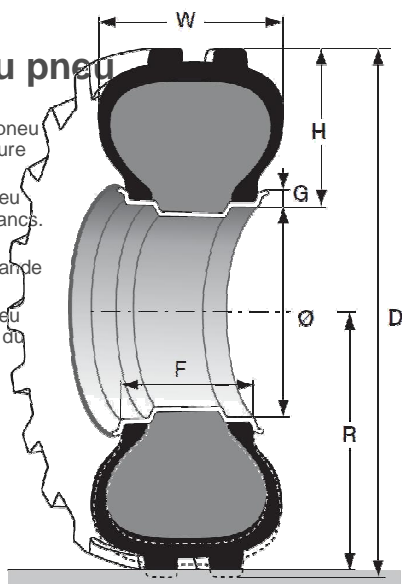
Lecture des dimensions d'un pneu agricole, telles qu'indiquées sur le flanc (adapté de Continental AG, 2012).

Lecture des dimensions d'un pneu agricole, telles qu'indiquées sur le flanc (adapté de Continental AG, 2012).



Les dimensions du pneu

- D : **Diamètre extérieur** : diamètre du pneu gonflé, mesuré à la surface extérieure de la bande de roulement.
- W : **Largeur nominale** : largeur du pneu gonflé, mesurée à l'extérieur des flancs.
- H : **Hauteur de section** : hauteur des flancs du pneu, mesurée entre la bande de roulement et l'appui sur la jante.
- R : **Rayon sous charge** : rayon du pneu avec une charge imposée, mesuré du centre de l'essieu jusqu'au sol.



La jante

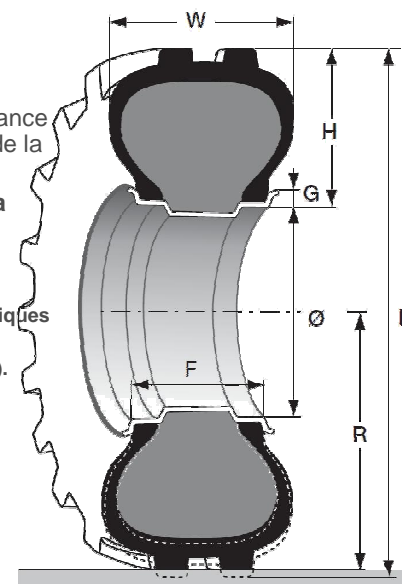
F : **Largeur de la jante** : distance entre les rebords d'appui de la jante.

G : **Hauteur du rebord de la jante**

Ø : **Diamètre nominal de la jante**

Les principales dimensions physiques d'un pneu

(adapté de Continental AG, 2012).



Indice de charge

133 : **Indice de charge maximale autorisée**

133 = 2060 kg

A8 : **Indice de vitesse pour charge maximale autorisée**

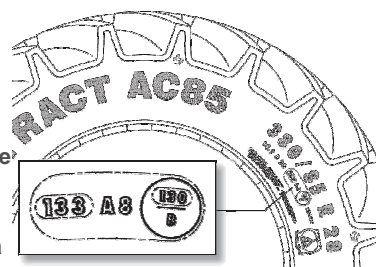
A8 = 40 km/h

130 : **Indice de charge alternatif à vitesse élevée**

130 = 1900 kg

B : **Indice de vitesse alternatif**

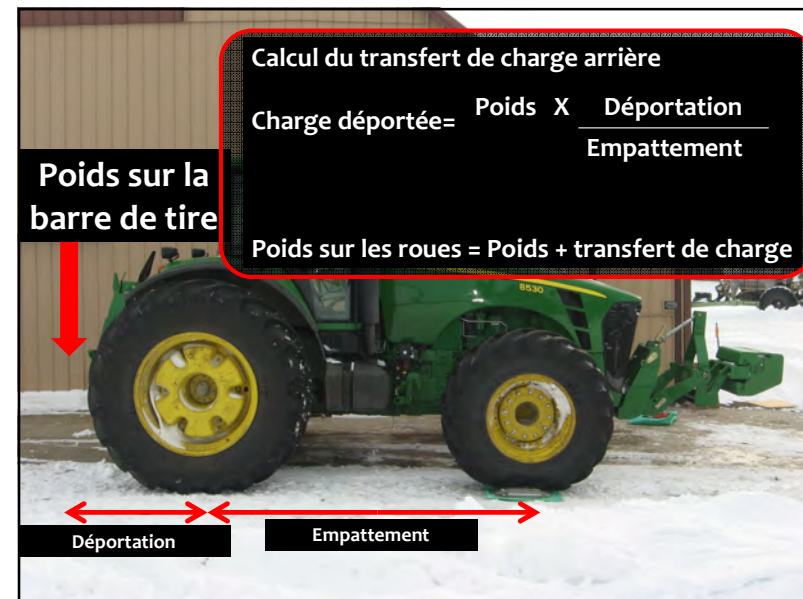
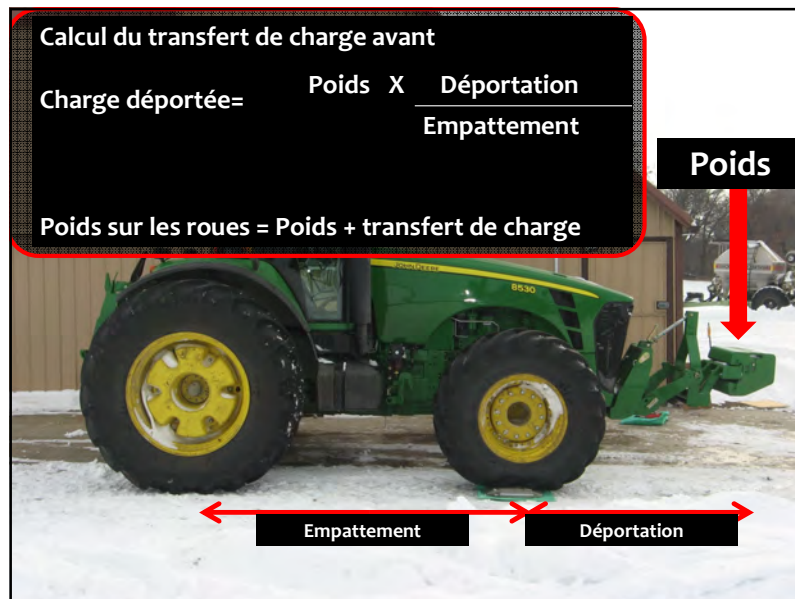
B = 50 km/h



Un peu de physique



Photo Nicolas Dubuc



Faisons un essai Sur les tests du Nébraska Case Masum 195

Tested without ballast
Two 710/70R38; **:15(100)
Two 600/65R28; **:15(100)
24.0 in (610 mm)
10990 lb (4985 kg)
6815 lb (3090 kg)
17805 lb (8075 kg)

http://tractortestlab.unl.edu/c/document_library/get_file?uuid=3b25f6ff-d994-448a-ae66-ae5a141b36e&groupId=4805395&.pdf

Validons avec le tracteur à vide



3090 kg

38,2 %

4985 kg

61,7 %

600/65 R 28

710/70 R 38

Total 8075 kg

La charge par pneu si pneu simple

1545 kg 2493 kg par pneu



3090 kg 4985

600/65 R 28 710/70 R 38

MICHELIN® MACHXBIB®									
600/65R28 147A8/147B TL XM28™									
MSPN : 88859 CAI : 410431									
Load per tire (single)									
30 mph 50 km/h	25 mph 40 km/h	20 mph 30 km/h	16 mph 25 km/h	12 mph 20 km/h	8 mph 13 km/h	6 mph 10 km/h	4 mph 6 km/h	25 mph Dual 40 km/h Dual	Pressure
4,410 lbs	4,410 lbs	4,410 lbs	4,410 lbs	4,410 lbs	4,410 lbs	4,410 lbs	4,410 lbs	4,410 lbs	6 psi
2,000 kgs	2,000 kgs	2,000 kgs	2,000 kgs	2,000 kgs	2,000 kgs	2,000 kgs	2,000 kgs	2,000 kgs	0.4 bar
4,880 lbs	4,880 lbs	4,880 lbs	4,880 lbs	4,880 lbs	4,880 lbs	4,880 lbs	4,880 lbs	4,880 lbs	8 psi
2,215 kgs	2,215 kgs	2,215 kgs	2,215 kgs	2,215 kgs	2,215 kgs	2,215 kgs	2,215 kgs	2,215 kgs	0.6 bar
5,360 lbs	5,360 lbs	5,360 lbs	5,360 lbs	5,360 lbs	5,360 lbs	5,360 lbs	5,360 lbs	5,360 lbs	10 psi
2,430 kgs	2,430 kgs	2,430 kgs	2,430 kgs	2,430 kgs	2,430 kgs	2,430 kgs	2,430 kgs	2,430 kgs	0.8 bar
5,840 lbs	5,840 lbs	5,840 lbs	5,840 lbs	5,840 lbs	5,840 lbs	5,840 lbs	5,840 lbs	5,840 lbs	12 psi
2,650 kgs	2,650 kgs	2,650 kgs	2,650 kgs	2,650 kgs	2,650 kgs	2,650 kgs	2,650 kgs	2,650 kgs	1.0 bar
6,320 lbs	6,320 lbs	6,320 lbs	6,320 lbs	6,320 lbs	6,320 lbs	6,320 lbs	6,320 lbs	6,320 lbs	15 psi
2,865 kgs	2,865 kgs	2,865 kgs	2,865 kgs	2,865 kgs	2,865 kgs	2,865 kgs	2,865 kgs	2,865 kgs	1.2 bar
6,790 lbs	6,790 lbs	6,790 lbs	6,790 lbs	6,790 lbs	6,790 lbs	6,790 lbs	6,790 lbs	6,790 lbs	20 psi
3,080 kgs	3,080 kgs	3,080 kgs	3,080 kgs	3,080 kgs	3,080 kgs	3,080 kgs	3,080 kgs	3,080 kgs	1.4 bar
9,520 lbs	9,520 lbs	9,520 lbs	9,520 lbs	9,520 lbs	9,520 lbs	9,520 lbs	9,520 lbs	9,520 lbs	25 psi
4,320 kgs	4,320 kgs	4,320 kgs	4,320 kgs	4,320 kgs	4,320 kgs	4,320 kgs	4,320 kgs	4,320 kgs	1.7 bar
9,840 lbs	9,840 lbs	9,840 lbs	9,840 lbs	9,840 lbs	9,840 lbs	9,840 lbs	9,840 lbs	9,840 lbs	26 psi
4,465 kgs	4,465 kgs	4,465 kgs	4,465 kgs	4,465 kgs	4,465 kgs	4,465 kgs	4,465 kgs	4,465 kgs	1.8 bar
10,160 lbs	10,160 lbs	10,160 lbs	10,160 lbs	10,160 lbs	10,160 lbs	10,160 lbs	10,160 lbs	10,160 lbs	28 psi
4,610 kgs	4,610 kgs	4,610 kgs	4,610 kgs	4,610 kgs	4,610 kgs	4,610 kgs	4,610 kgs	4,610 kgs	1.9 bar

*All load values are for maximum indicated speeds at low torque.
*20 mph (30 km/h): high torque field work or max road speed.
*All load values for ground slopes up to 20% (above 20% consult Michelin).

Tire Technical Data			
Unloaded Dimensions	Loaded Dimensions	Rims (preferred in bold)	
Overall Width	Overall Diameter	Radius	Rolling Circumference
22.9 in	58.7 in	26.1 in	173.6 in
582 mm	1,490 mm	662 mm	4,415 mm

Rolling Circumference Index
42
Number of Lugs
18 x 2

Gross Flat Plate	Tire Weight	100% Tire Volume	Centerline Tread Depth
352 sq in	326 lbs	138.7 gals	58/32nd
2,270 sq cm	148 kgs	525 liters	46 mm

Pneus arrière

710/70R38 166A8/166B TL XM28™ MSPN : 50825 CAI : 282667									
Load per tire (single)					Pressure	Tire Technical Data			
30 mph 50 km/h	25 mph 40 km/h	20 mph 30 km/h	15 mph 10 km/h	25 mph Dual 40 km/h Dual		Unloaded Dimensions		Loaded Dimensions	
		5,890 lbs 2,670 kgs	7,540 lbs 3,420 kgs	4,720 lbs 2,140 kgs	8 psi 0.4 bar	Overall Width	Overall Diameter	Loaded Radius	Rolling Circumference
7,810 lbs 3,450 kgs	7,810 lbs 3,450 kgs	8,140 lbs 3,690 kgs	10,340 lbs 4,690 kgs	6,890 lbs 3,035 kgs	9 psi 0.6 bar	27.6 in 700 mm	76.7 in 1,947 mm	33.7 in 855 mm	226.6 in 5,755 mm
8,420 lbs 3,820 kgs	8,420 lbs 3,820 kgs	9,010 lbs 4,085 kgs	11,440 lbs 5,190 kgs	7,410 lbs 3,360 kgs	12 psi 0.8 bar				
9,240 lbs 4,190 kgs	9,240 lbs 4,190 kgs	9,880 lbs 4,480 kgs	12,590 lbs 5,695 kgs	8,120 lbs 3,685 kgs	15 psi 1.0 bar				
10,050 lbs 4,560 kgs	10,050 lbs 4,560 kgs	10,760 lbs 4,880 kgs	13,660 lbs 6,195 kgs	8,850 lbs 4,015 kgs	17 psi 1.2 bar				
10,870 lbs 4,930 kgs	10,870 lbs 4,930 kgs	11,630 lbs 5,275 kgs	14,760 lbs 6,695 kgs	9,570 lbs 4,340 kgs	20 psi 1.4 bar				
11,680 lbs 5,300 kgs	11,680 lbs 5,300 kgs	12,500 lbs 5,670 kgs	15,870 lbs 7,200 kgs	10,280 lbs 4,665 kgs	23 psi 1.6 bar				
			16,420 lbs 7,450 kgs		25 psi 1.7 bar	Gross Flat Plate	Tire Weight	100% Tire Volume	Centerline Tread Depth
			16,980 lbs 7,700 kgs		26 psi 1.8 bar	524 sq in 3,379 sq cm	654 lb 297 kgs	273.1 gals 1,034 liters	71/32nd 56 mm
			17,530 lbs 7,950 kgs		28 psi 1.9 bar				

La charge par pneu si pneu simple

1545 kg 2493 kg

Si beaucoup de route 9 psi

Au champ

à vide 6 psi

Avant et arrière

3090 kg 4985 kg

600/65 R 28 710/70 R 38

Évaluons le poids du réservoir

5600 gallons X 10 lb/gallon =
55000*0,95%= 52250lb
+ poids du réservoir 23000 lb = 75250 lb
Disons que (75250- 6000)/4 = 7869 lb



3090 kg 4985 kg

La charge par pneu si pneu simple

1545 kg 2493 kg

3090 kg 4985

600/65 R 28 710/70 R 38

Calcul de charge arrière

$$4985 + 2727 + 2727 * 1/2,5 = 8803 \text{ kg} / 2 = 4401 \text{ kg roue simple}$$



Calcul de poids avant

$$3090 - 2727 * 1/2,5 = 1999 \text{ kg} / 2 = 999 \text{ kg roue simple}$$



Calcul du poids avant avec ajout

$$1999 + 1500 + 1500 * 1/2,5 = 4099 \text{ kg} / 2 = 2049 \text{ kg roue simple}$$

Ajout 1500 kg



Ajustement du poids arrière

$$8803 - 1500 * 1/2,5 = 8203 \text{ kg} / 2 = 4101 \text{ kg roue simple}$$

Ajout 1500 kg

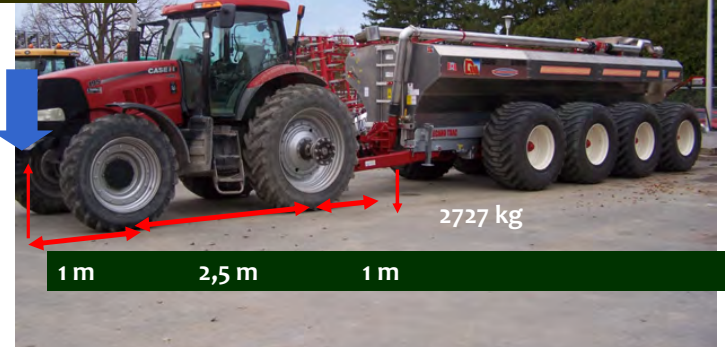


Diagram illustrating the balance calculation for a tractor-trailer system. The tractor has a weight of 4099 kg, and the trailer has a weight of 2727 kg. The distance from the tractor's center of gravity to the trailer's center of gravity is 2,5 m. The distance from the tractor's center of gravity to the pivot point is 1 m. The distance from the trailer's center of gravity to the pivot point is 1 m.

Annotations:

- Tractor weight: 4099 kg
- Tractor weight percentage: 32%
- Trailer weight: 2727 kg
- Trailer weight percentage: 68%
- Tractor CG to Trailer CG distance: 2,5 m
- Tractor CG to Pivot distance: 1 m
- Trailer CG to Pivot distance: 1 m

Validons le balancement

2395 avant et arrière 4101 kg roue simple

Pression

Ajout 1500 kg

2727 kg Plein
1000 kg vide

Pression

MICHELIN® MACHXBIB®

600/65R28 147A8/147B TL XM28™

MSPN : 88859

CAI : 410431

Load per tire (single)

30 mph 50 km/h	25 mph 40 km/h	20 mph 30 km/h	6 mph 10 km/h	6 mph Cyclic 10 mph Cyclic	25 mph Dual 40 km/h Dual	Pressure
		3,420 lbs 1,550 kgs	4,370 lbs 1,980 kgs	4,320 lbs 1,960 kgs	2,910 lbs 1,320 kgs	5 psi 0.4 bar
4,410 lbs 2,000 kgs	4,410 lbs 2,000 kgs	4,410 lbs 2,000 kgs	6,000 lbs 2,720 kgs	6,000 lbs 2,720 kgs	3,980 lbs 1,760 kgs	9 psi 0.6 bar
4,880 lbs 2,215 kgs	4,880 lbs 2,215 kgs	4,880 lbs 2,215 kgs	6,640 lbs 3,010 kgs	6,640 lbs 3,010 kgs	4,300 lbs 1,950 kgs	12 psi 0.8 bar
5,360 lbs 2,430 kgs	5,360 lbs 2,430 kgs	5,360 lbs 2,430 kgs	7,280 lbs 3,300 kgs	7,280 lbs 3,300 kgs	4,720 lbs 2,140 kgs	15 psi 1.0 bar
5,840 lbs 2,650 kgs	5,840 lbs 2,650 kgs	5,840 lbs 2,650 kgs	7,910 lbs 3,590 kgs	7,910 lbs 3,590 kgs	5,140 lbs 2,330 kgs	17 psi 1.2 bar
6,320 lbs 2,865 kgs	6,320 lbs 2,865 kgs	6,320 lbs 2,865 kgs	8,560 lbs 3,885 kgs	8,560 lbs 3,885 kgs	5,560 lbs 2,520 kgs	20 psi 1.4 bar
6,790 lbs 3,080 kgs	6,790 lbs 3,080 kgs	6,790 lbs 3,080 kgs	9,200 lbs 4,175 kgs	9,200 lbs 4,175 kgs	5,970 lbs 2,710 kgs	23 psi 1.6 bar

*All load values are for maximum indicated speeds at low torque.
 *20 mph (30 km/h): high torque field work or max road speed.
 *All load values for ground slopes up to 20% (above 20% consult Michelin).

Tire Technical Data

Unloaded Dimensions		Loaded Dimensions	
Overall Width	Overall Diameter	Loaded Radius	Rolling Circumference
22.9 in 582 mm	50.7 in 1,466 mm	26.1 in 662 mm	173.8 in 4,415 mm

Rims
(preferred in bold)
DW18L
 DW20B (A)

Rolling Circumference Index

42
Number of Lugs 18 x 2

Tube MSFN
 88857
 Tube CAI
 101447

Gross Flat Plate	Tire Weight	100% Tire Volume	Centerline Tread Depth
352 sq in 2,270 sq cm	326 lbs 148 kgs	138.7 gals 525 liters	58/32nd 46 mm

Minimum Dual/Triples
 Spacing
 760 mm

710/70R38 166A8/166B TL XM28™
MSPN : 50825 CAI : 282667

[illegible]

Si roues double avant et arrière diviser le charge de 12 %

Donc

avant $2395 / .88/2 = 1360$

arrière $4101 / .88/2 = 2500$ kg roue simple

Pression



MICHELIN® MACHXBIB®

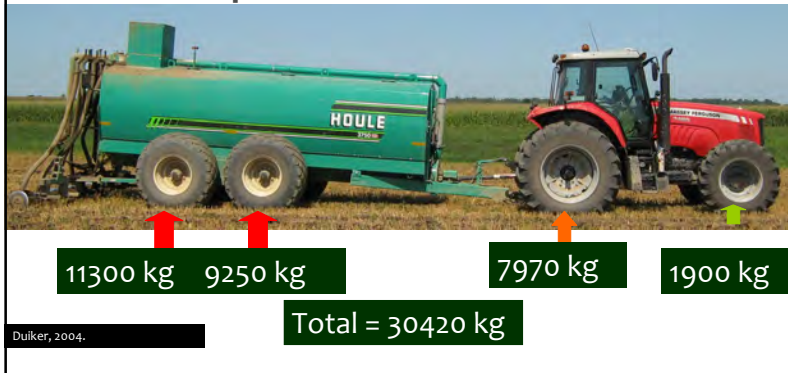
500/65R28 147A8/147B TL XM28™

MSPN : 88859

CAI : 410431

Load per tire (single)								Pressure	Tire Technical Data				Rims (preferred in bold) DW18L DW20B (A)
0 mph 0 km/h	25 mph 40 km/h	20 mph 30 km/h	15 mph 20 km/h	10 mph 15 km/h	6 mph 10 km/h	4 mph 6 km/h							
Cyclic													
0 mph 0 km/h	25 mph 40 km/h	20 mph 30 km/h	15 mph 20 km/h	10 mph 15 km/h	6 mph 10 km/h	4 mph 6 km/h	25 mph Dual 40 km/h Dual						
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	5 psi 0.4 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	9 psi 0.6 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	12 psi 0.8 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	15 psi 1.0 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	17 psi 1.2 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	20 psi 1.4 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	23 psi 1.6 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	25 psi 1.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	28 psi 1.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	31 psi 2.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	34 psi 2.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	37 psi 2.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	40 psi 2.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	43 psi 2.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	46 psi 3.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	49 psi 3.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	52 psi 3.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	55 psi 3.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	58 psi 3.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	61 psi 4.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	64 psi 4.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	67 psi 4.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	70 psi 4.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	73 psi 4.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	76 psi 5.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	79 psi 5.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	82 psi 5.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	85 psi 5.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	88 psi 5.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	91 psi 6.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	94 psi 6.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	97 psi 6.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	100 psi 6.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	103 psi 6.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	106 psi 7.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	109 psi 7.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	112 psi 7.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	115 psi 7.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	118 psi 7.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	121 psi 8.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	124 psi 8.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	127 psi 8.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	130 psi 8.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	133 psi 8.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	136 psi 9.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	139 psi 9.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	142 psi 9.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	145 psi 9.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	148 psi 9.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	151 psi 10.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	154 psi 10.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	157 psi 10.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	160 psi 10.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	163 psi 10.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	166 psi 11.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	169 psi 11.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	172 psi 11.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	175 psi 11.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	178 psi 11.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	181 psi 12.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	184 psi 12.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	187 psi 12.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	190 psi 12.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	193 psi 12.9 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	196 psi 13.1 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	199 psi 13.3 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	202 psi 13.5 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	205 psi 13.7 bar					
410 lbs 200 kgs	4,410 lbs 2,000 kgs	4,420 lbs 2,000 kgs	4,430 lbs 2,000 kgs	4,440 lbs 2,000 kgs	4,450 lbs 2,000 kgs	4,460 lbs 2,000 kgs	4,470 lbs 2,000 kgs	208 psi 13.9 bar					
410 lbs 200 kgs	4,41												

Charges à l'essieu excessifs:
Sont la principale cause du compactage
du sous-sol (> 30 cm)
Charge à l'essieu maximale recommandée
= 6 tonnes par essieu



Les bons pneus pour un meilleur travail

Ce n'est pas parce que votre concessionnaire veut vendre que c'est bon pour vous!



Poids par essieu



Il faut diminuer le poids à l'essieu mais comment?

Le poids à l'essieu

L'option des chenilles devient intéressante. Nous ne divisons pas par 8 si 8 rouleaux. C'est plus complexe



Les chenilles

La performance dépend:

De la construction des trains et leur configuration

Le transfert de la charge au sol par le train

Les configurations

Multiple



Photo : Track Soucy

Simple



Photo : Challenger



23.04.2013



Le bon pneu pour le bon travail

Choisir un pneu qui vous donne le plus de possibilités d'ajustements

Tracteur	Normal	Optimum	Flottaison
125 hp 6000 kg charge	420/80R46 24 psi	520/85R38 16 psi	650/65R38 12 psi
200 hp double 8000 kg Charge	480/80R46 13 psi	520/85R42 10 psi	710/70R38 6 psi
300 hp Double 10000 kg Charge	520/85R46 14 psi	620/70R46 9 psi	650/85R38 7 psi
500 hp Double 12000 kg Charge	620/70R46 12 psi	650/85R38 9 psi	800/70R38 6 psi

Source Nicolas Dubuc

Références

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Merci de votre attention

À vos balances ce printemps avant les travaux

