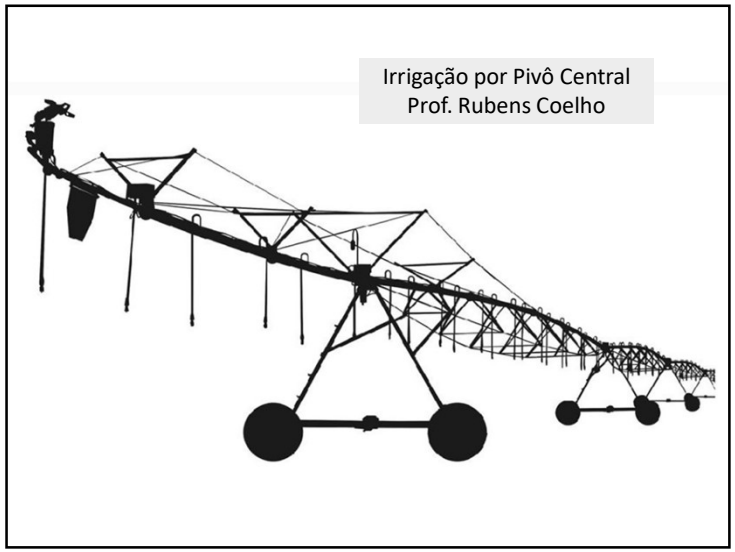
Irrigação por Pivô Central
Prof. Rubens Coelho

1


Irrigação por Pivô Central
Prof. Rubens Coelho

2

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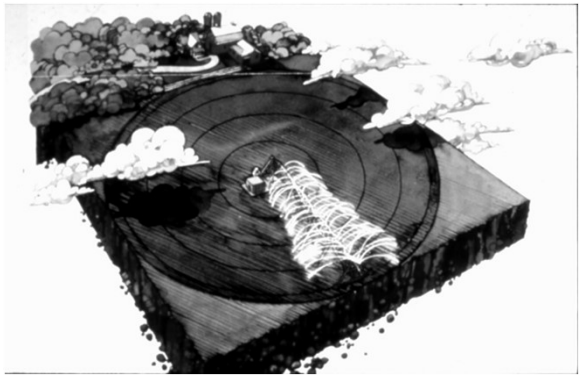
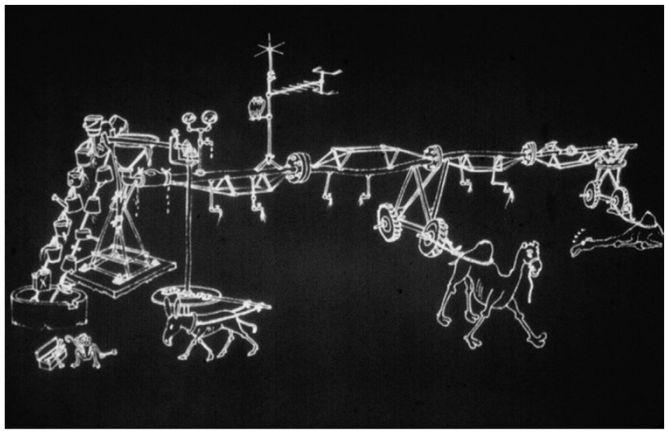
Les Sheffield, UNL

A.E. Trowbridge and Frank Zybach

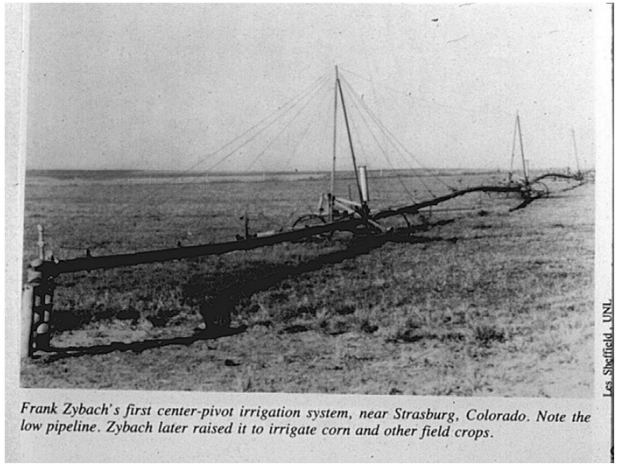
6



7



8



Les Sheffield, UNL

Frank Zybach's first center-pivot irrigation system, near Strasburg, Colorado. Note the low pipeline. Zybach later raised it to irrigate corn and other field crops.

9

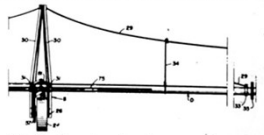
2,604,359

SELF-PROPELLED SPRINKLING IRRIGATING APPARATUS

Frank L. Zybach, Strasburg, Colo.

Application June 27, 1949, Serial No. 101,528
13 Claims. (Cl. 299—54)

1. In sprinkling and irrigation apparatus for a relatively large section of land or the like, which includes a central water supply pipe, a distributing pipe pivotally connected to said central supply pipe and movable around said central pipe as an axis, a plurality of supports disposed at spaced positions along said distributing pipe, and a plurality of discharge nozzles spaced along said distributing pipe for spraying water onto the land as said distributing pipe moves around, the improvement which comprises drive means at each support; and a control device at each intermediate support for controlling said drive means in accordance with the springing or bending of



said distributing pipe due to unequal movement at said supports, said control device including a tension cable attached to said distributing pipe at substantially equal distances to each side of said intermediate support, and a spring at said intermediate support holding said tension cable away from said distributing pipe.

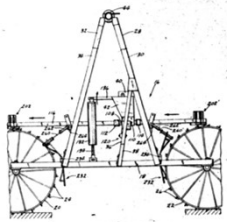
10

4,005,731

REVERSIBLE SELF-PROPELLED CENTER PIVOT SPRINKLER SYSTEM

Loren R. Townsend, Sidney, Nebr. 69162

Filed Mar. 5, 1976, Ser. No. 664,184
Int. Cl.² B05B 3/12
U.S. Cl. 137—344 7 Claims



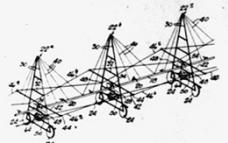
1. A reversible self-propelled center pivot sprinkler system, comprising,
a water supply pipe movable about a center pivot point,
a plurality of spaced-apart, wheeled drive towers supporting said supply pipe above the area to be sprinkled,
a drive means on each of said towers to propel said towers to move said towers and supply pipe about said center pivot point,
each of said towers comprising a frame means having a pair of spaced-apart drive wheels rotatably mounted thereon,
a trojan bar means reciprocatably mounted on said frame means and movable between first and second positions, at least one double dog means on said trojan bar means for

2,893,643

AMBULANT DISCHARGE IRRIGATING DEVICE

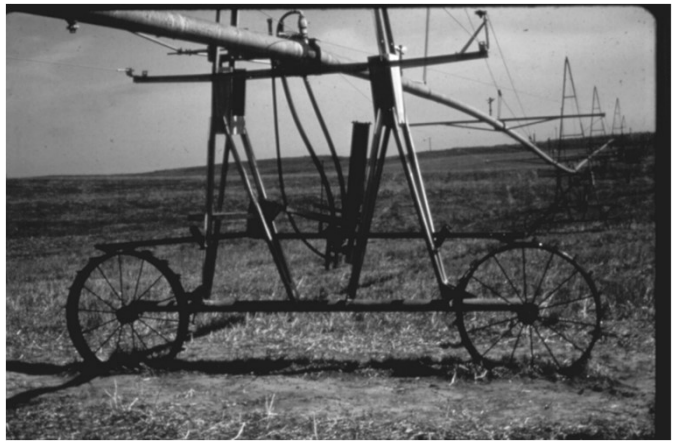
Allen J. Gordon, Petersburg, Ind.

Application June 18, 1956, Serial No. 591,826
18 Claims. (Cl. 239—177)



1. An irrigating device comprising an elongated irrigation conduit, a swivel coupling connecting one end of said conduit to a water source, a plurality of spaced wheeled structures, means freely suspending said conduit from said structures at spaced intervals, each structure including means responsive to water pressure for propelling the structure, means interconnecting said conduit and said propulsion means for modulating each propulsion means, and control means connected to said modulating means and to each of the two next adjacent structures to be responsive to change in the relation of its supporting structure to the adjacent structures and independent of said conduit for actuating the modulating means for the propulsion means of its supporting structure when subject to such change of relation.

11



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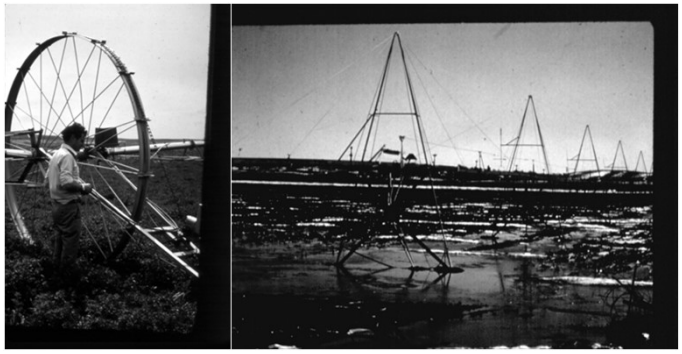


15

16

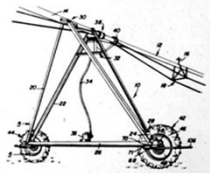
3,623,662

CIRCULAR IRRIGATION SYSTEM WITH WORM GEAR DRIVE

Richard F. Reinke, P.O. Box 272, Deshler, Nebr.

Filed Dec. 11, 1969, Ser. No. 884,117
Int. Cl. B05b 3/12
U.S. Cl. 239—177 7 Claims

A worm gear drive assembly for driving the wheeled support assemblies for an elongated irrigation pipe including a motor having an output controlled in response to bending or deflection of the pipe and a forwardly and rearwardly extending shaft with a drive worm gear on each end thereof engaged with a worm wheel for driving the supporting wheels. Each supporting wheel is connected to the frame structure in such a manner that it may be oriented for driving the pipe in a direction transverse to the longitudinal axis thereof or in a position perpendicular thereto to enable the irrigation pipe to be towed or pulled in a direction parallel to its longitudinal axis to facilitate movement from one area to be irrigated to another.



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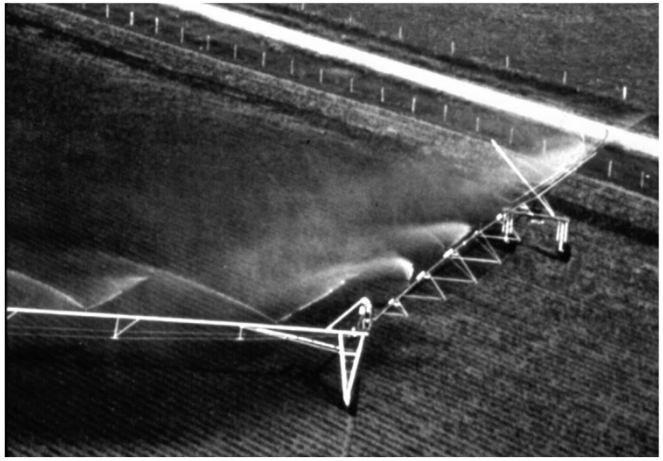

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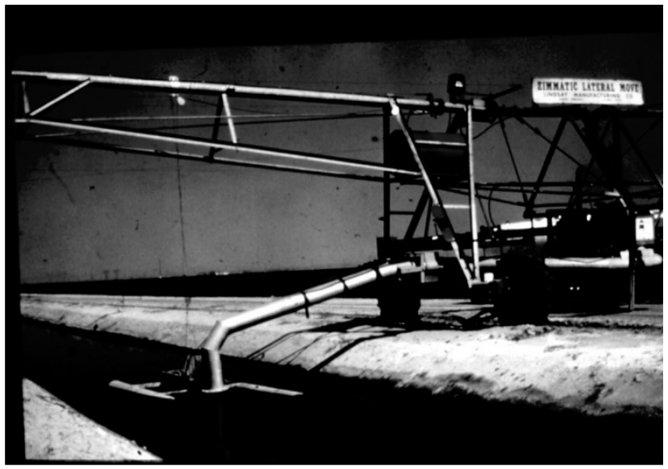


22

What is a Center Pivot? Pivot 101 - Valley Irrigation

Valley Irrigation • 32 mil visualizações • há 1 ano

What is a **center pivot**? How does a **center pivot** work? What are the pa answers to all these ...

https://www.youtube.com/watch?v=2bILpvH3EuQ

Fabricação de Um Pivô Central

Valley Irrigação Brasil • 1 mil visualizações • há 2 anos

Veja como é fabricado o pivô de irrigação Valley do começo ao fim e e em irrigação. Os ...

https://www.youtube.com/watch?v=3IhYCw6js4Y

23

Treinamento - Montagem Pivot Valley

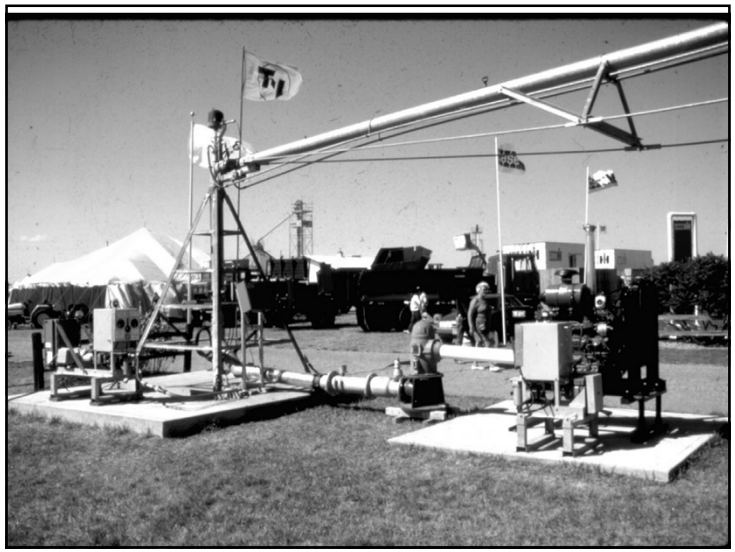
Tiago Ferraz • 74 mil visualizações • há 5 anos

https://www.youtube.com/watch?v=iy6thNZwp-4

YouTube BR

15:57

24



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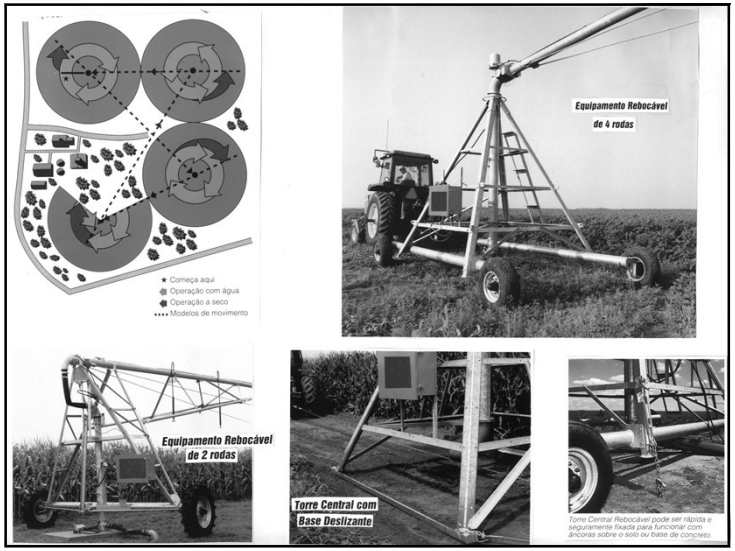
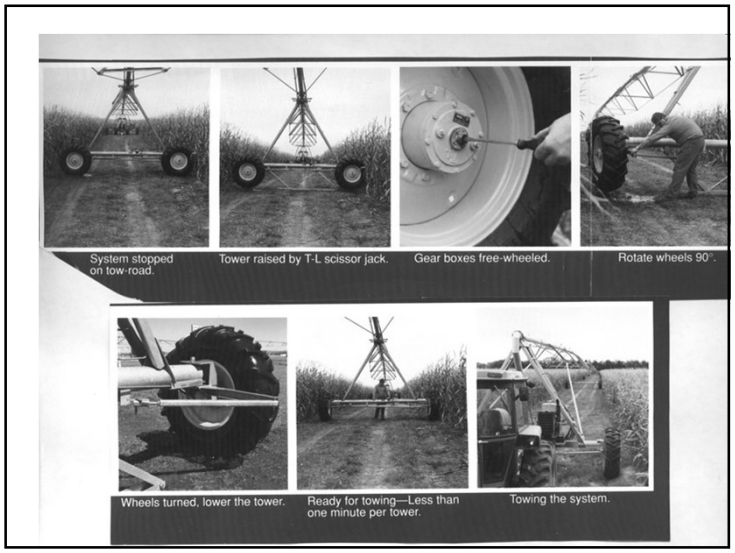
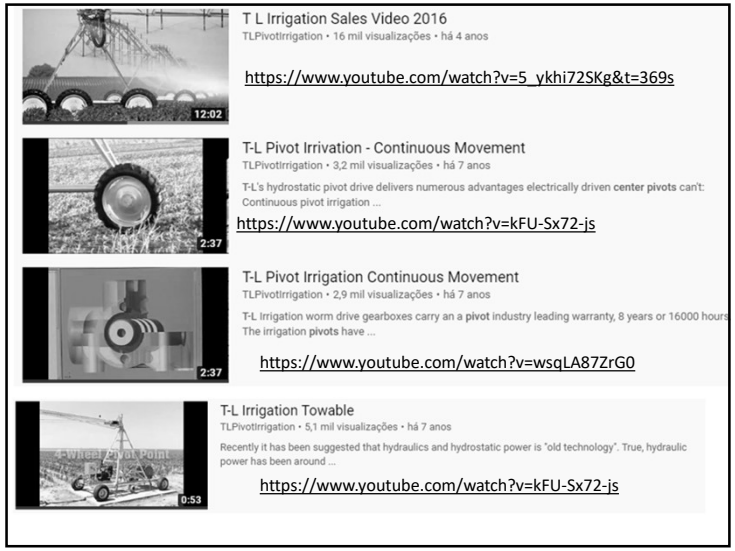

★ Começa aqui
Operação com água
Operação a seco
Modelos de movimento
Equipamento Rebocável
de 4 rodas
Equipamento Rebocável
de 2 rodas
Torre Central com
Base Deslizante
Torre Central Rebocável pode ser rápida e
seguramente fixada para funcionar com
âncoras sobre o solo ou base de concreto.

28

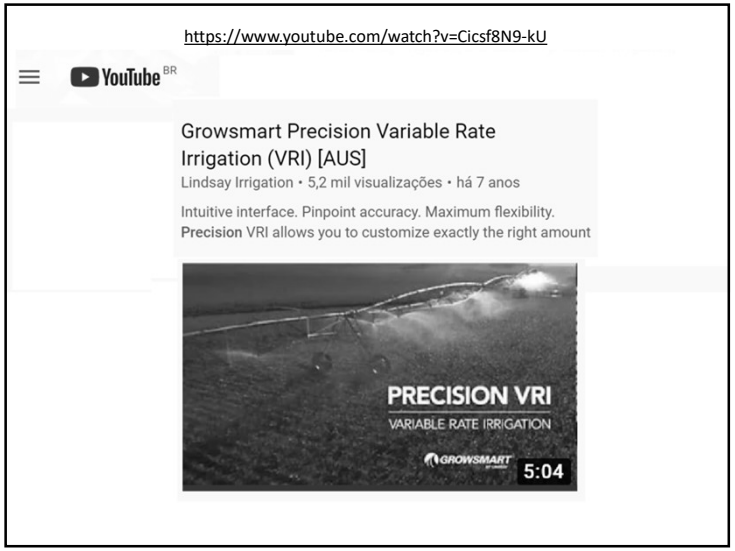
29


System stopped on tow-road.
Tower raised by T-L scissor jack.
Gear boxes free-wheeled.
Rotate wheels 90°.
Wheels turned, lower the tower.
Ready for towing—Less than one minute per tower.
Towing the system.

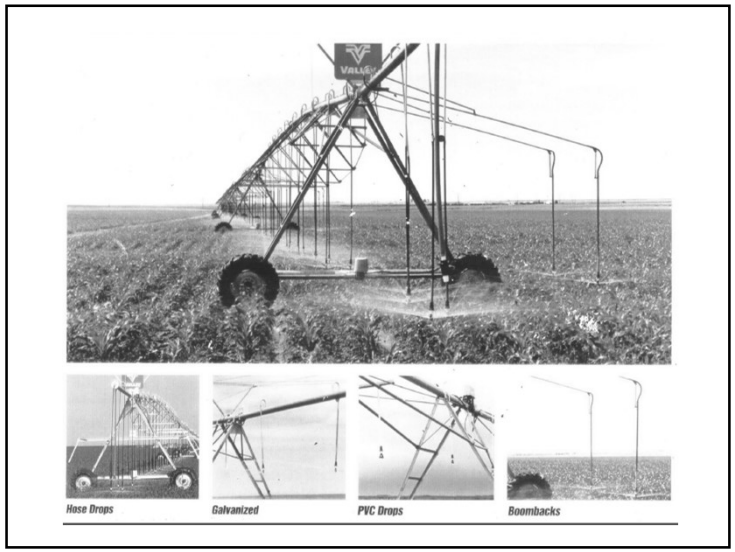
30


T L Irrigation Sales Video 2016
TLPivotIrrigation • 16 mil visualizações • há 4 anos
12:02
https://www.youtube.com/watch?v=5_ykhi72SKg&t=369s
T-L Pivot Irrivation - Continuous Movement
TLPivotIrrigation • 3,2 mil visualizações • há 7 anos
T-L's hydrostatic pivot drive delivers numerous advantages electrically driven center pivots can't: Continuous pivot irrigation ...
2:37
https://www.youtube.com/watch?v=kFU-Sx72-js
T-L Pivot Irrigation Continuous Movement
TLPivotIrrigation • 2,9 mil visualizações • há 7 anos
T-L Irrigation worm drive gearboxes carry an a pivot industry leading warranty, 8 years or 16000 hours. The irrigation pivots have ...
2:37
https://www.youtube.com/watch?v=wsqLA87ZrG0
T-L Irrigation Towable
TLPivotIrrigation • 5,1 mil visualizações • há 7 anos
Recently it has been suggested that hydraulics and hydrostatic power is "old technology". True, hydraulic power has been around ...
0:53
https://www.youtube.com/watch?v=kFU-Sx72-js

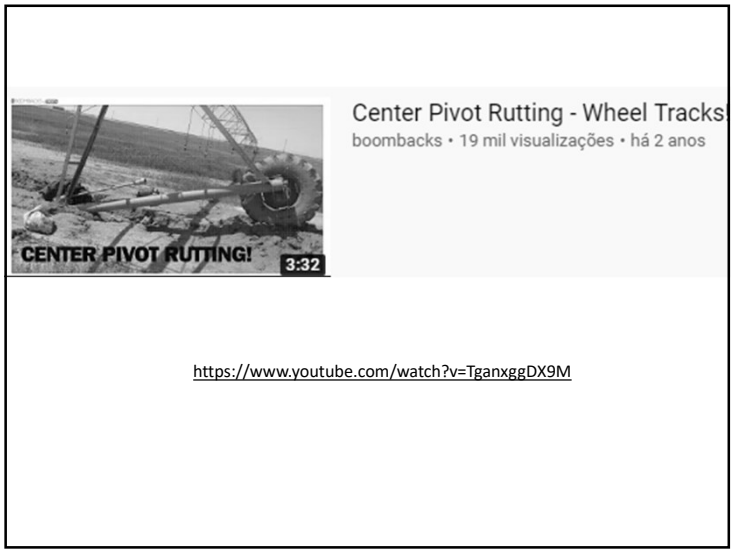
31


https://www.youtube.com/watch?v=Cicsf8N9-kU
YouTube BR
Growsmart Precision Variable Rate Irrigation (VRI) [AUS]
Lindsay Irrigation • 5,2 mil visualizações • há 7 anos
Intuitive interface. Pinpoint accuracy. Maximum flexibility. Precision VRI allows you to customize exactly the right amount
PRECISION VRI
VARIABLE RATE IRRIGATION
GROWSMART
5:04

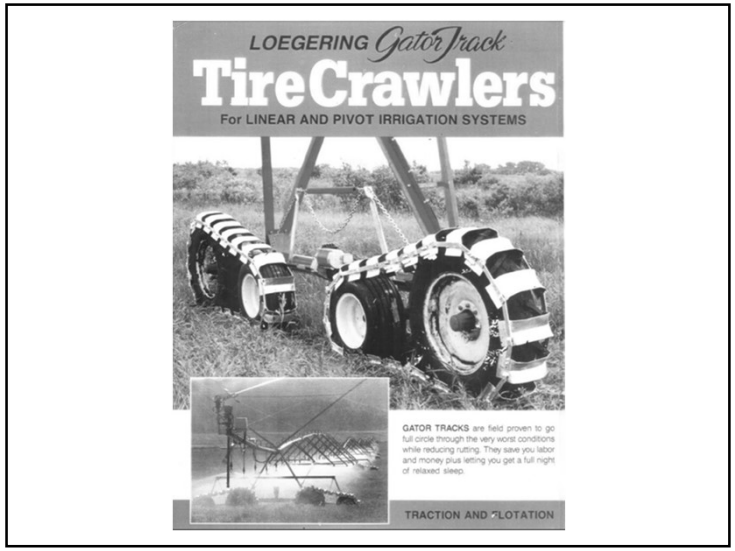
32


Hose Drops
Galvanized
PVC Drops
Boombacks

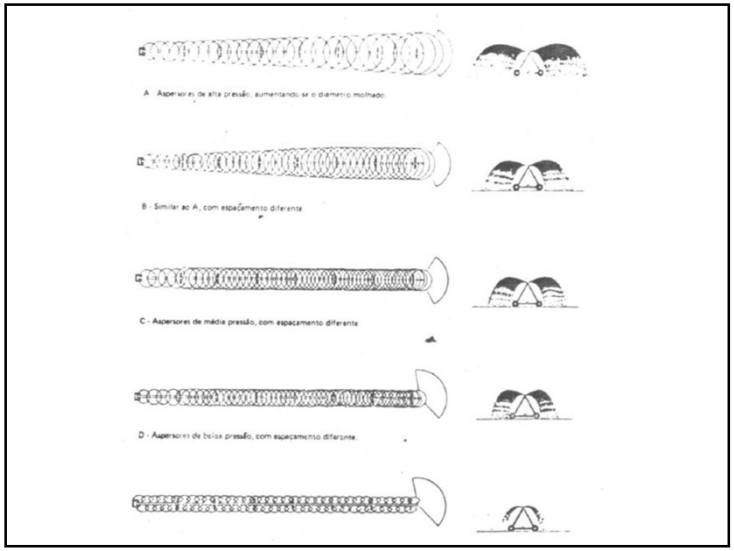
33


Center Pivot Rutting - Wheel Tracks
boombacks • 19 mil visualizações • há 2 anos
CENTER PIVOT RUTTING!
3:32
https://www.youtube.com/watch?v=TganxggDX9M

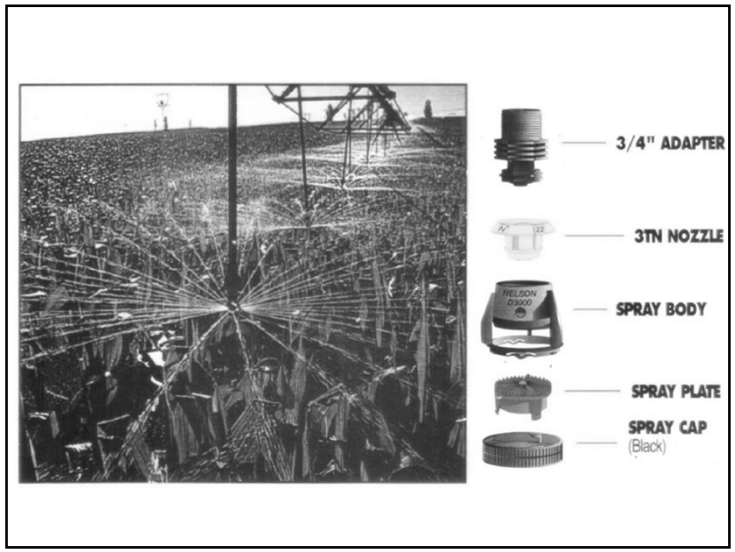
34


LOEGERING GatorTrack
TireCrawlers
For LINEAR AND PIVOT IRRIGATION SYSTEMS
GATOR TRACKS are field proven to go full circle through the very worst conditions while reducing rutting. They save you labor and money plus letting you get a full night of relaxed sleep.
TRACTION AND FLOTATION

35


A - Aspersores de alta pressão, aumentando se o diâmetro molhado
B - Similar ao A, com espaçamento diferente
C - Aspersores de média pressão, com espaçamento diferente
D - Aspersores de baixa pressão, com espaçamento diferente.

36


3/4" ADAPTER
3TN NOZZLE
SPRAY BODY
SPRAY PLATE
SPRAY CAP
(Black)

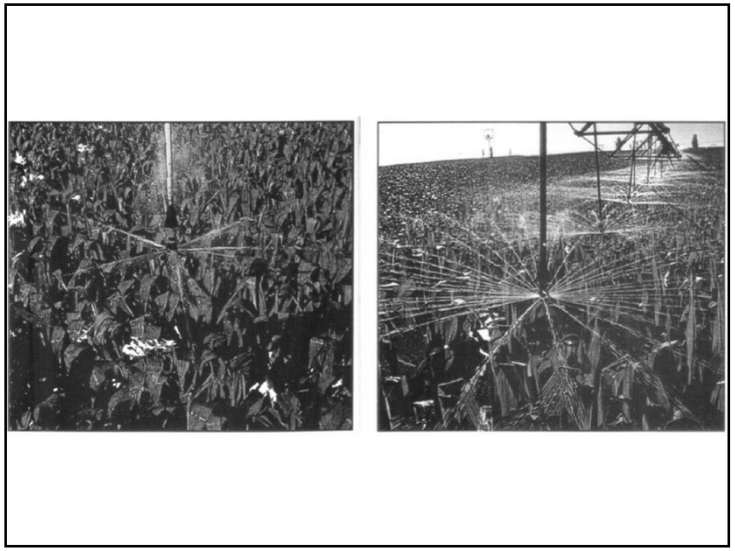
37


https://www.youtube.com/watch?v=MVsCEFGTpv4
Senninger's Super Spray UP3: Model Comparison
Senninger Irrigation • 4,4 mil visualizações • há 5 anos
The Super Spray is the ideal sprinkler for poor quality water due to the distance between the nozzle, pad and bracket. Learn
1:30

38


https://www.youtube.com/watch?v=qD9VPmY27n4

39



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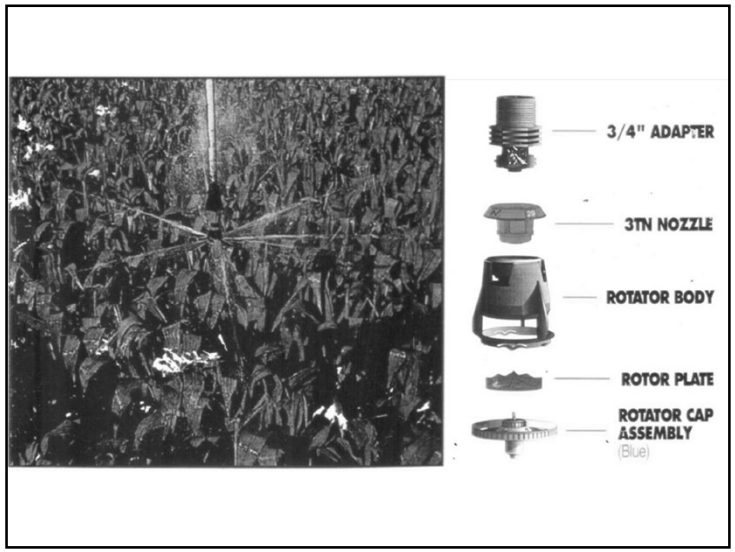
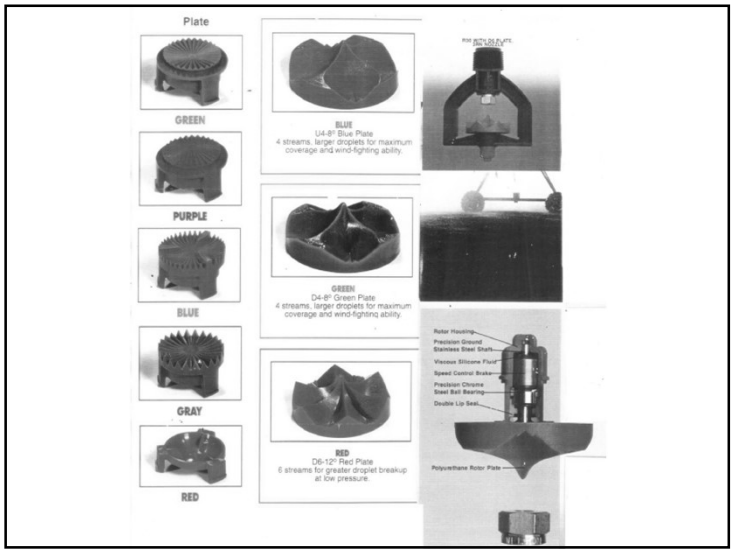


41



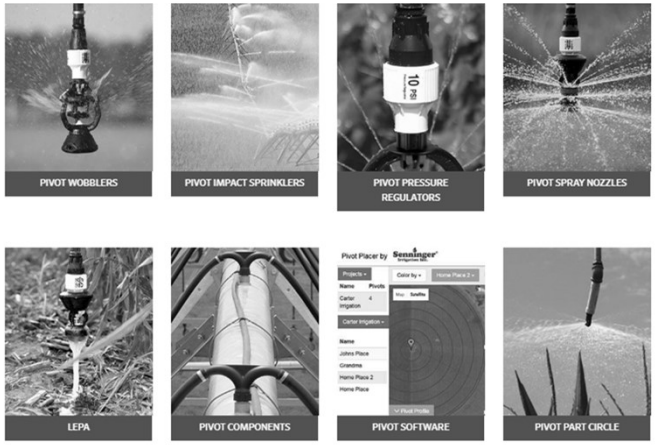
42

https://www.youtube.com/watch?v=DTciUiVv4zw

43

https://youtu.be/WXUWm6PbUao

44



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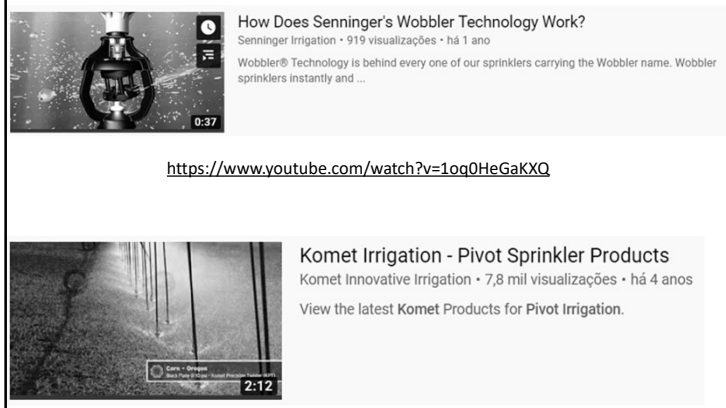
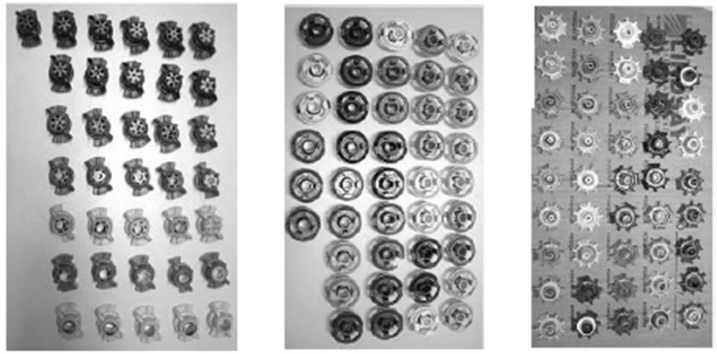
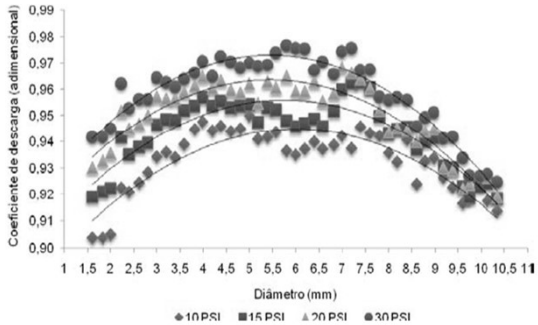


46



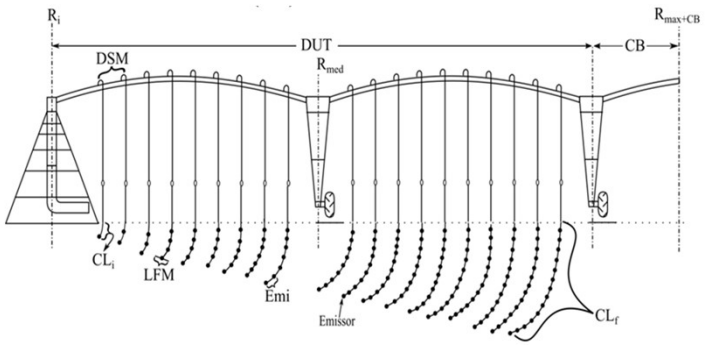
47



Curvas dos coeficientes de descarga dos bocais Senninger em função do diâmetro do bocal operando com pressões de10, 15, 20 e 30 PSI

48

Irrigação por Gotejamento Móvel



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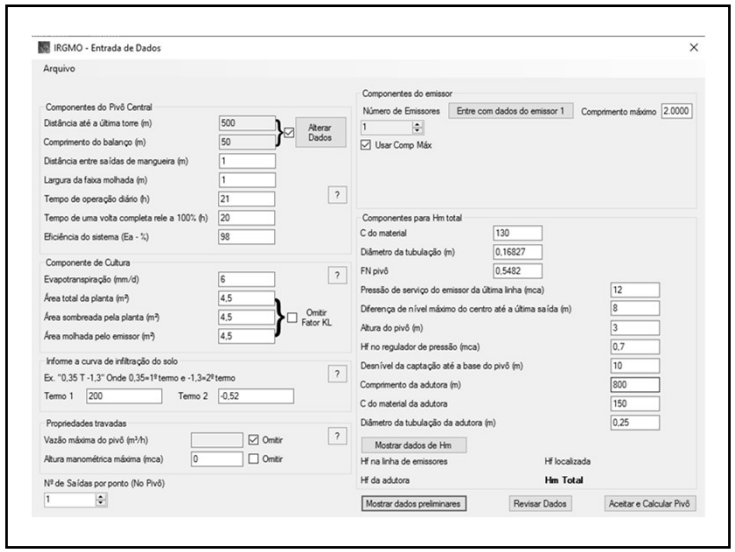

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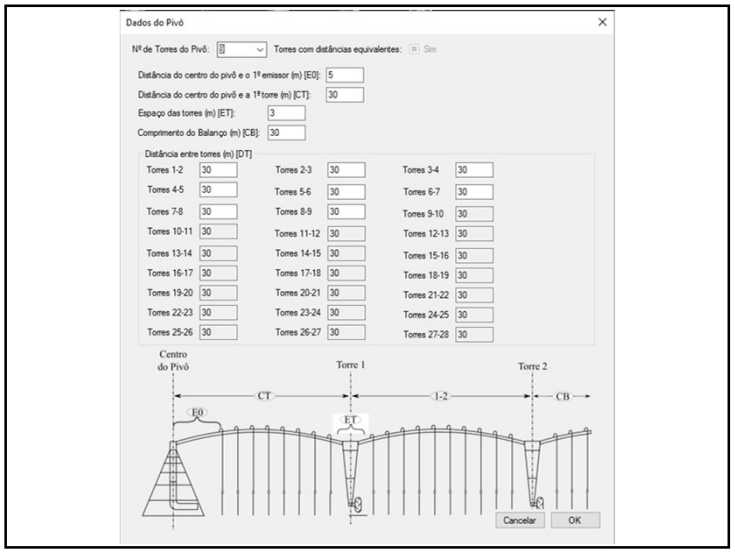
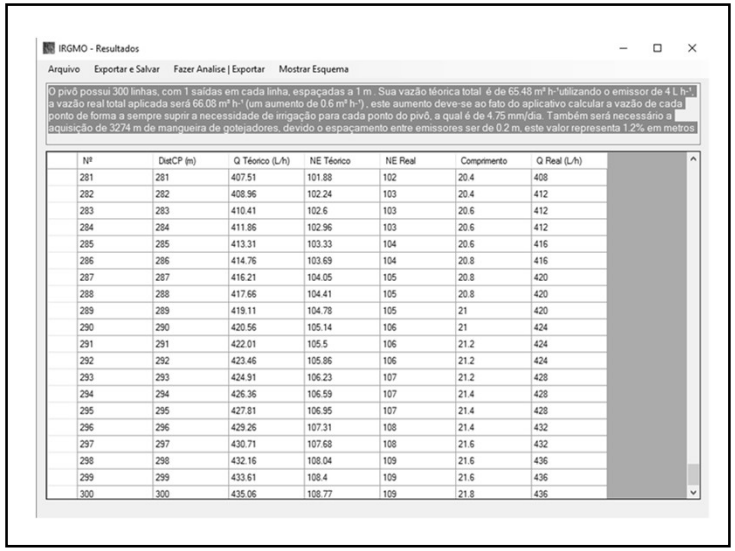
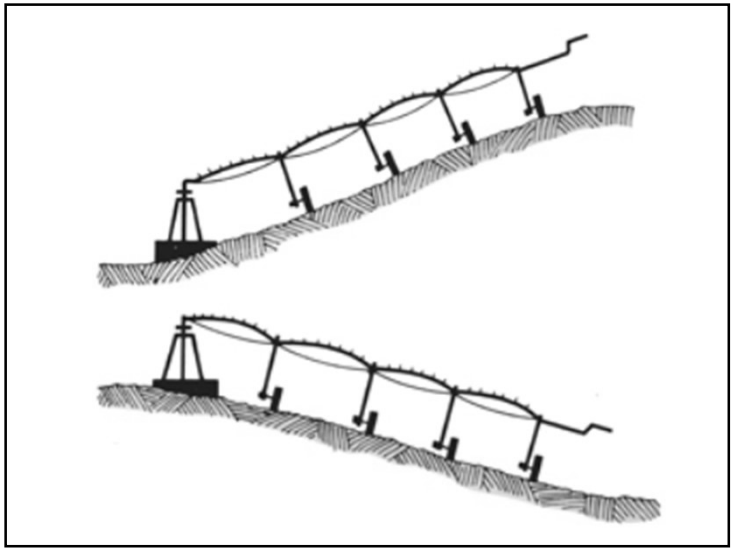


54



Nº	DistCP (m)	Q Téorico (L/h)	NE Téorico	NE Real	Comprimento	Q Real (L/h)
281	281	407.51	101.88	102	20.4	408
282	282	408.96	102.24	103	20.4	412
283	283	410.41	102.6	103	20.6	412
284	284	411.86	102.96	103	20.6	412
285	285	413.31	103.33	104	20.6	416
286	286	414.76	103.69	104	20.8	416
287	287	416.21	104.05	105	20.8	420
288	288	417.66	104.41	105	20.8	420
289	289	419.11	104.78	105	21	420
290	290	420.56	105.14	106	21	424
291	291	422.01	105.5	106	21.2	424
292	292	423.46	105.86	106	21.2	424
293	293	424.91	106.23	107	21.2	428
294	294	426.36	106.59	107	21.4	428
295	295	427.81	106.95	107	21.4	428
296	296	429.26	107.31	108	21.4	432
297	297	430.71	107.68	108	21.6	432
298	298	432.16	108.04	109	21.6	436
299	299	433.61	108.4	109	21.6	436
300	300	435.06	108.77	109	21.8	436

55



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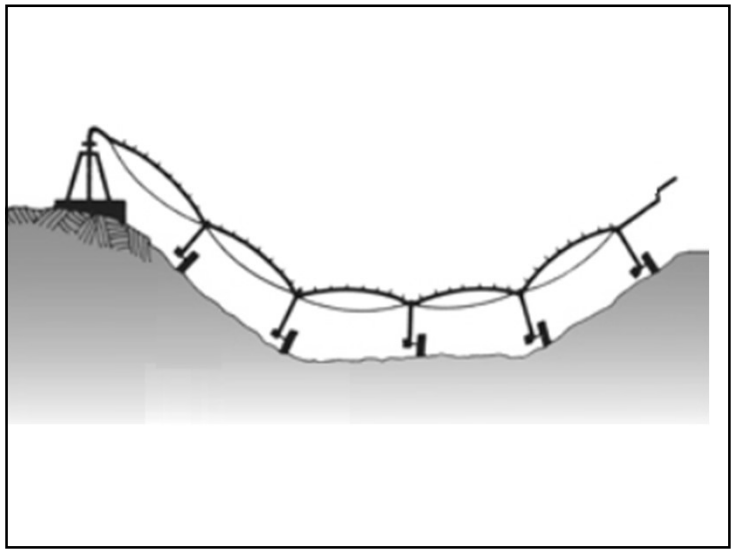
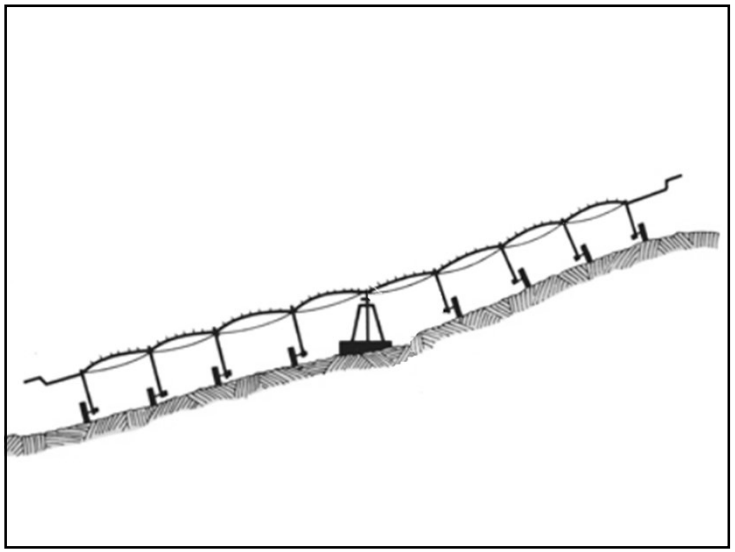


57



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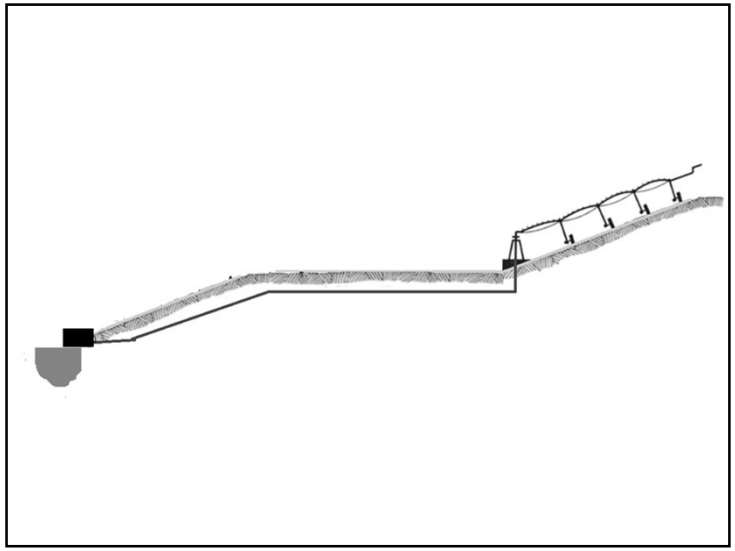

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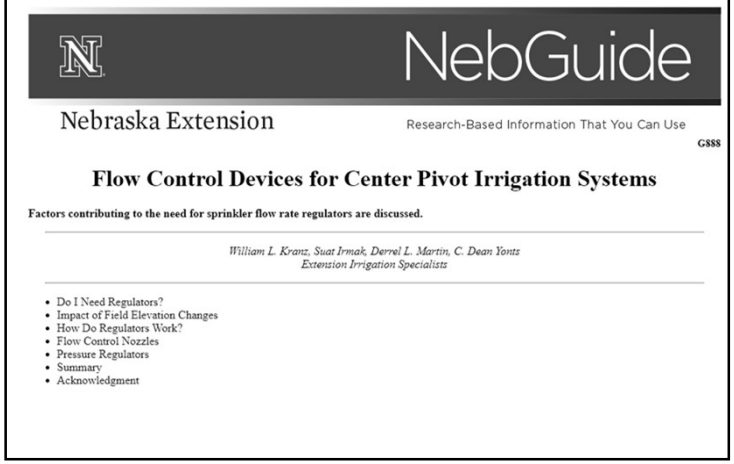
http://extensionpublications.unl.edu/assets/html/g888/build/g888.htm



NebGuide

Nebraska Extension

Research-Based Information That You Can Use

G888

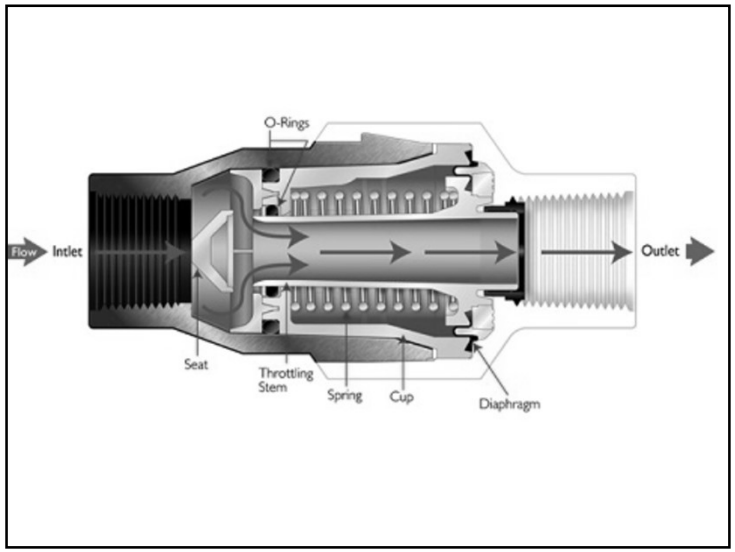
Flow Control Devices for Center Pivot Irrigation Systems

Factors contributing to the need for sprinkler flow rate regulators are discussed.

William L. Kranz, Suat Irmak, Derrel L. Martin, C. Dean Yonts
Extension Irrigation Specialists

- Do I Need Regulators?
- Impact of Field Elevation Changes
- How Do Regulators Work?
- Flow Control Nozzles
- Pressure Regulators
- Summary
- Acknowledgment

60



61

62

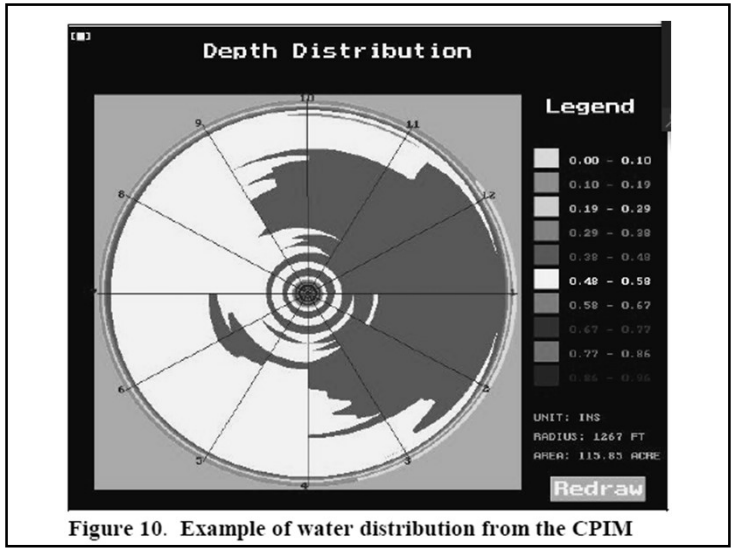


Figure 10. Example of water distribution from the CPIM

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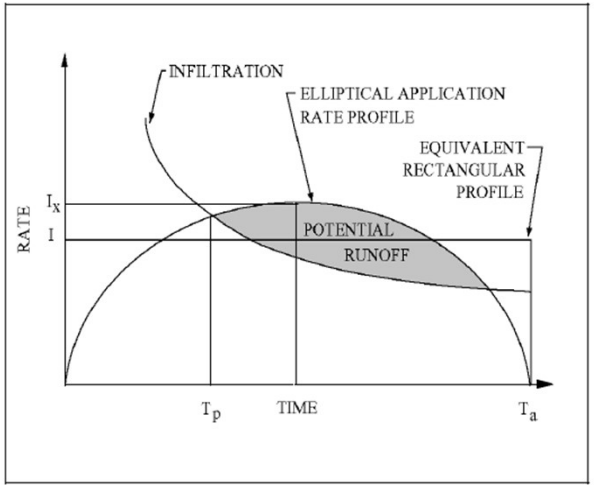
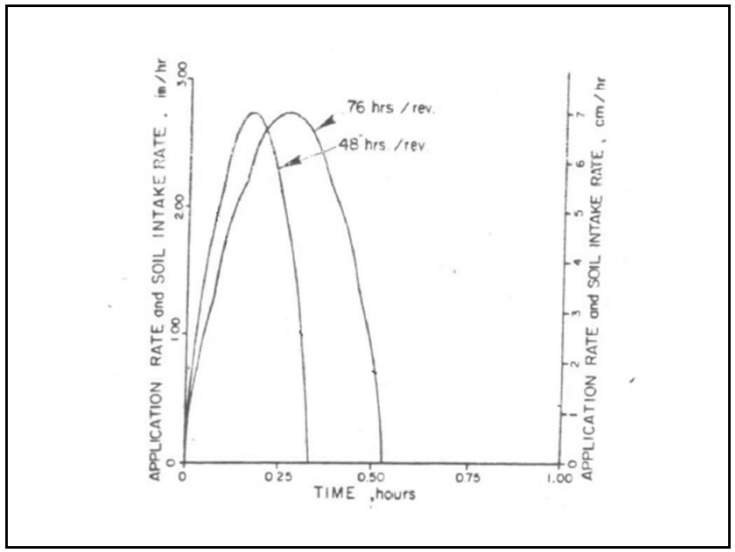
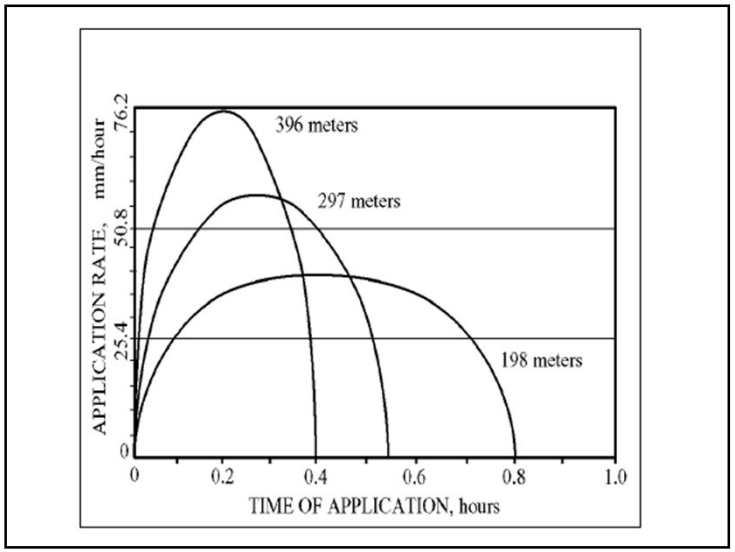


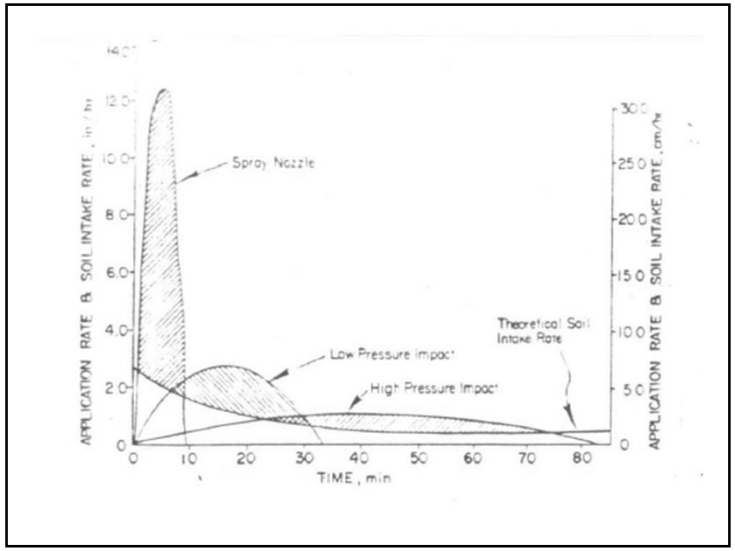
64


APPLICATION RATE and SOIL INTAKE RATE , in/hr
APPLICATION RATE and SOIL INTAKE RATE , cm/hr
76 hrs / rev.
48 hrs / rev.
TIME , hours

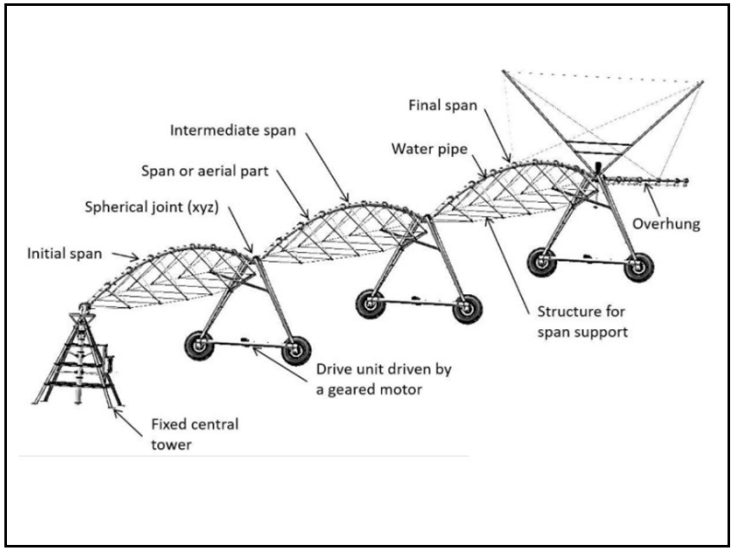
65


APPLICATION RATE, mm/hour
396 meters
297 meters
198 meters
TIME OF APPLICATION, hours

66


APPLICATION RATE & SOIL INTAKE RATE , in/hr
APPLICATION RATE & SOIL INTAKE RATE , cm/hr
Spray Nozzle
Low Pressure Impact
High Pressure Impact
Theoretical Soil Intake Rate
TIME , min

67


Final span
Intermediate span
Water pipe
Span or aerial part
Spherical joint (xyz)
Overhung
Initial span
Structure for span support
Drive unit driven by a geared motor
Fixed central tower

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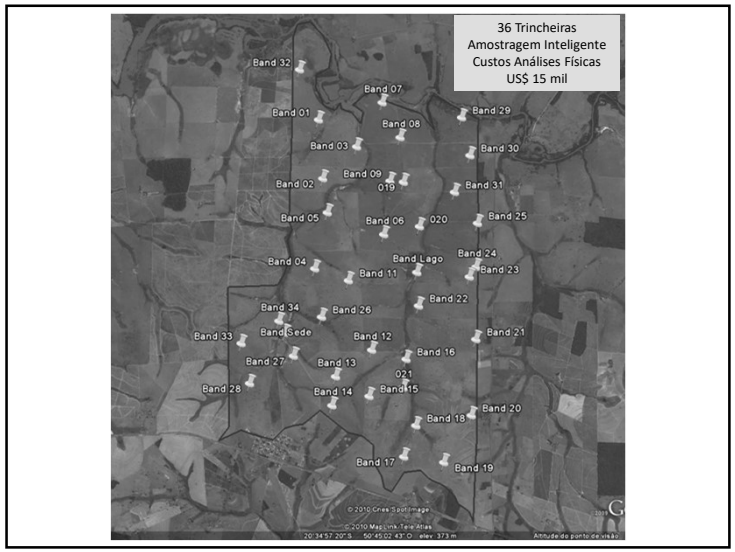
36 Trincheiras
Amostragem Inteligente
Custos Análises Físicas
US$ 15 mil
Band 32
Band 07
Band 01
Band 29
Band 08
Band 03
Band 30
Band 09
019
Band 02
Band 31
Band 05
Band 06
020
Band 25
Band 04
Band Lago
Band 24
Band 11
Band 23
Band 22
Band 34
Band 26
Band 33
Band Sede
Band 12
Band 21
Band 27
Band 13
Band 16
021
Band 28
Band 14
Band 15
Band 20
Band 18
Band 17
Band 19

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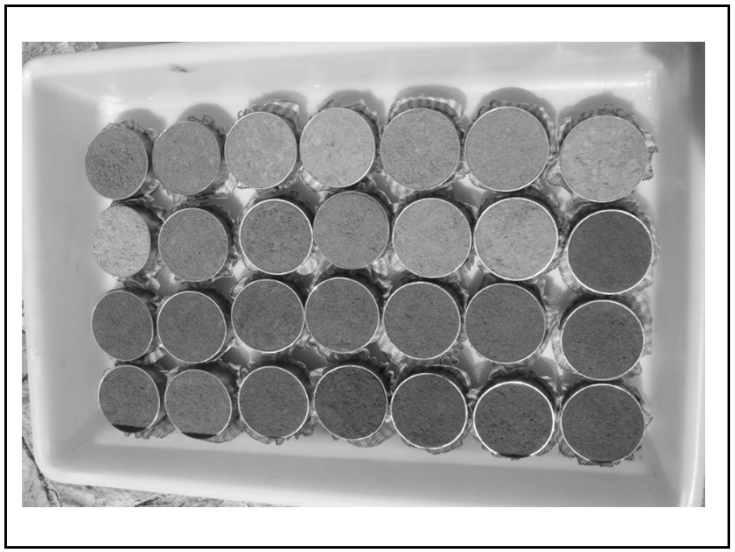
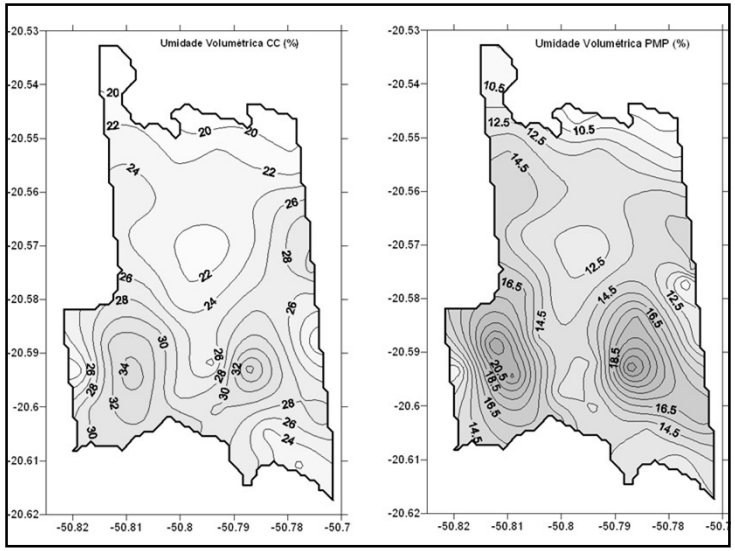
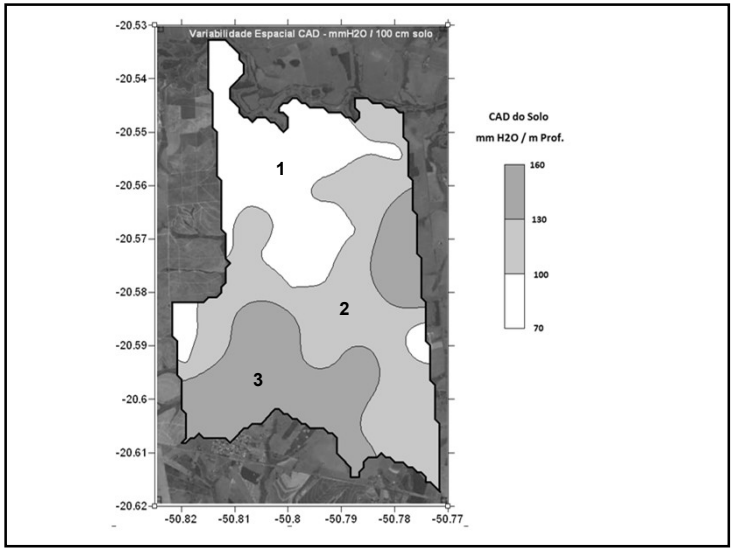


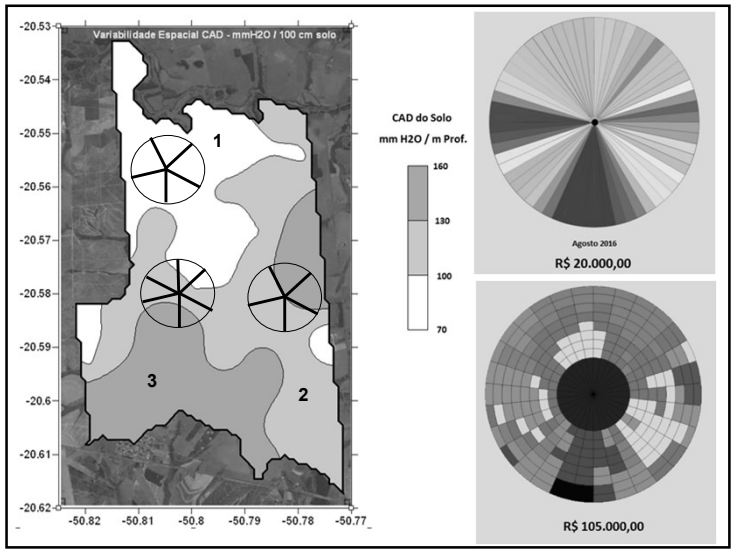
70


Umidade Volumétrica CC (%)
Umidade Volumétrica PMP (%)

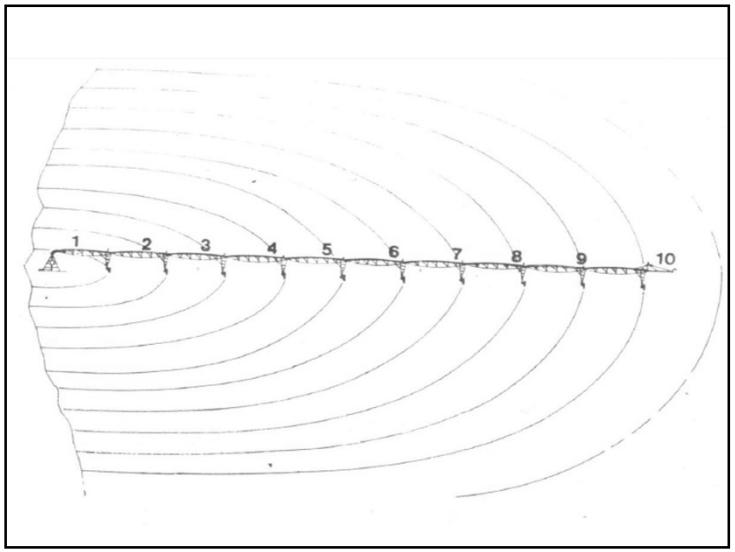
71


Variabilidade Espacial CAD - mmH2O / 100 cm solo
CAD do Solo
mm H2O / m Prof.
160
130
100
70
1
2
3

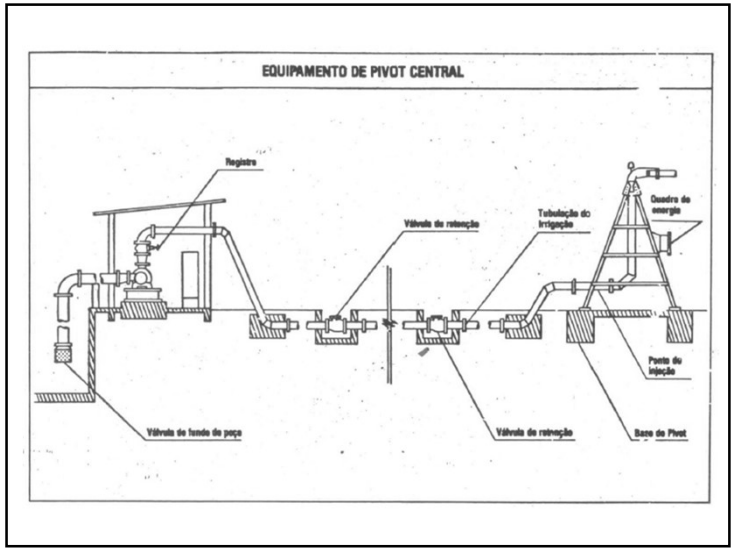
72


Variabilidade Espacial CAD - mmH2O / 100 cm solo
-20.53
-20.54
-20.55
-20.56
-20.57
-20.58
-20.59
-20.6
-20.61
-20.62
-50.82
-50.81
-50.8
-50.79
-50.78
-50.77
1
2
3
CAD do Solo
mm H2O / m Prof.
160
130
100
70
Agosto 2016
R$ 20.000,00
R$ 105.000,00

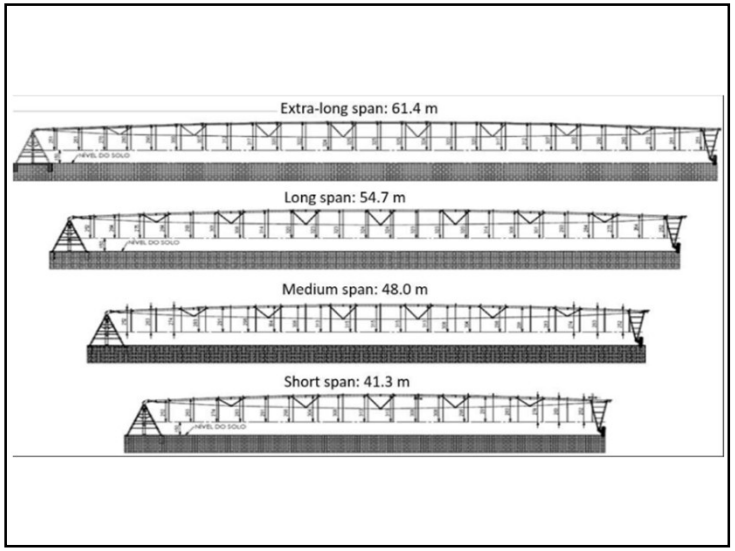
73


1
2
3
4
5
6
7
8
9
10

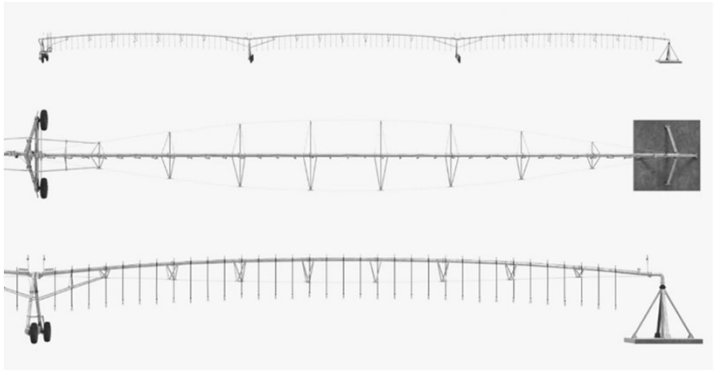
74


EQUIPAMENTO DE PIVOT CENTRAL
Registro
Válvula de retenção
Tubulação de irrigação
Quadro de energia
Ponto de injeção
Válvula de fundo de poço
Válvula de retenção
Base do Pivot

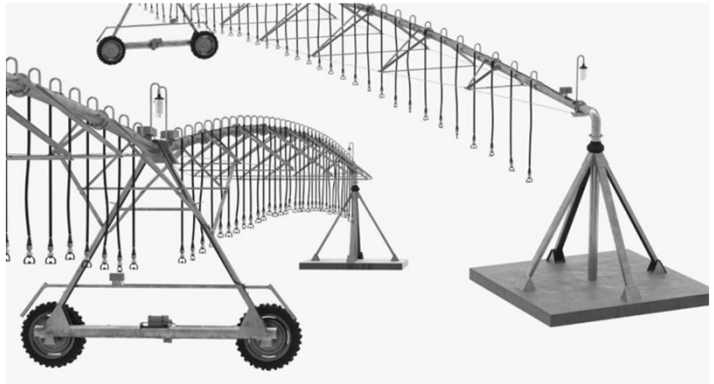
75


Extra-long span: 61.4 m
Long span: 54.7 m
Medium span: 48.0 m
Short span: 41.3 m

76



77



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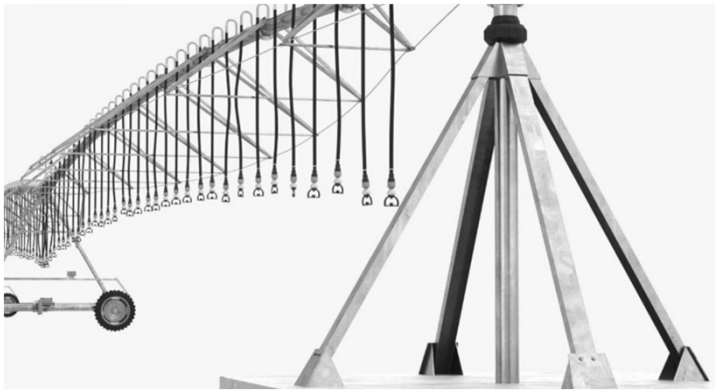
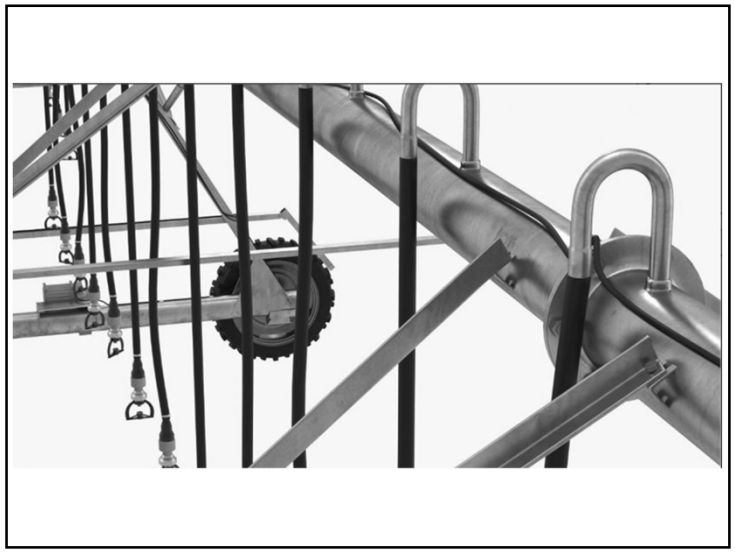
http://3dsmolier.com/3d-model-center-pivot-irrigation-system



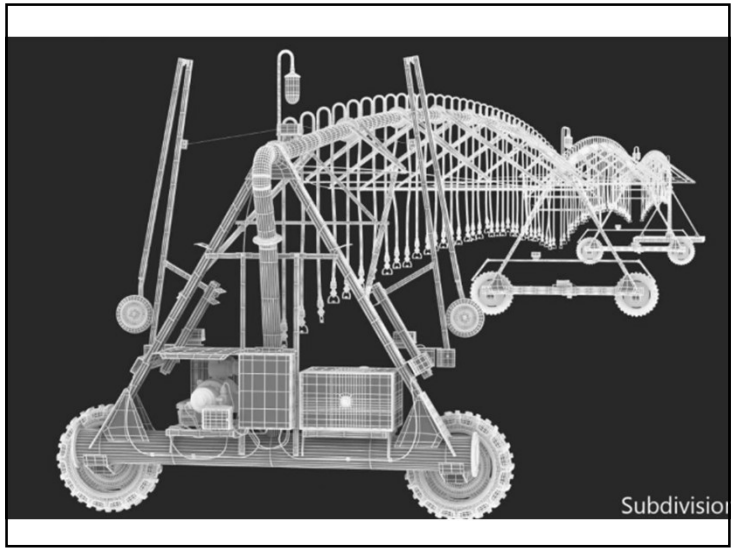
79

80



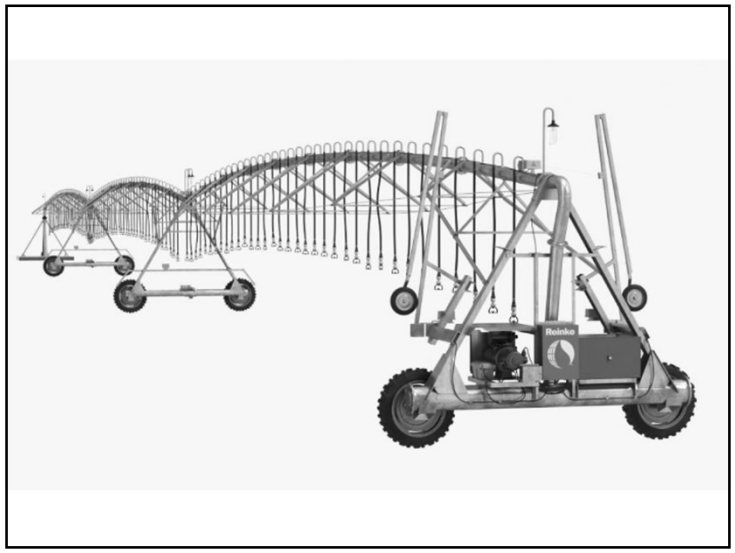
81

82



83

84



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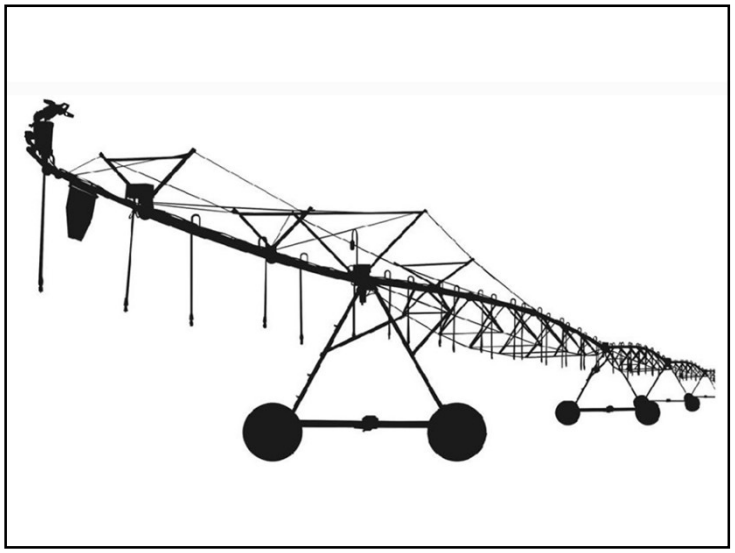

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