

Handling and Storage of Cotton Seed in Tropical and Temperate Climates

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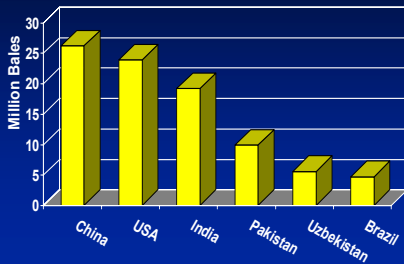


World Production-2005

114.2 million bales



Leading Countries- (2005)



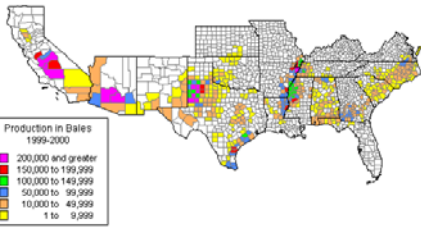
U. S. Production-2005

23.2 million bales

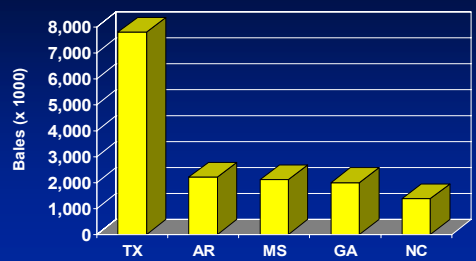


Cotton Belt States-USA

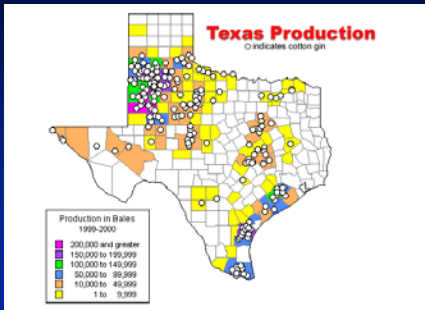
United States Production



Leading States- (2005)



Cotton Belt State-Texas



Seed Cost

50# bag

“Farmer caught”	\$10.00
Certified	\$30.00
Transgenic	\$150.00 to \$400.00

Acres planted in US (2005) 14.2 M

(\$200/bag & 10#/A= \$568,000,000)

SEED QUALITY NOW BECOMES EVEN MORE IMPORTANT

Cottonseed Takes a “Beating”

Harvesting



Cottonseed Takes a “Beating”

Moduling



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Moduling



Cottonseed Takes a "Beating"

Ginning



Cottonseed Takes a "Beating"

Ginning



Cottonseed Takes a "Beating"

Storage



Cottonseed Takes a "Beating"

Conditioning (delinting)



Cottonseed Takes a "Beating"

Storage



The "TRIP"

- Production Field
- Harvesting and Moduling
- Seed Cotton Storage
- Ginning
- Seed Storage (Gin-run seed)
- Conditioning (Delinting, etc.)
- Seed Storage (Delinted seed)

Production Field

Good Agronomic Practices

- Field Selection
- Irrigation
- Fertility
- Pest Control
- Harvest Preparation

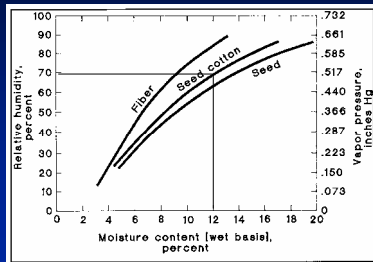
Harvesting and Moduling

Harvesting

- Machine set properly (min. mechanical damage)
- Harvest dry seed cotton-- <12% moisture

Harvesting and Moduling

Equilibrium Moisture Content



Hughs, Mangialardi, and Jackson

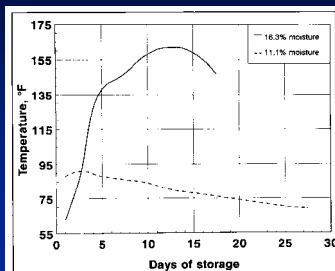
Harvesting and Moduling

Module

- Location (high ground-drainage & loading)
- Design and Density (shed water)
- Tarping (shed water)
- Monitoring (temperature)
 - 10 – 15 F increase in 3 – 5 days = ok
 - 20 F increase= gin immediately
 - Temperature of 110 F= gin immediately

Harvesting and Moduling

Module Moisture Content



Lalor, Willcutt, and Curley

Seed Cotton Storage

Prior to Ginning

Moisture Content of Seed (%WB)	Maximum Safe Storage (Days)
8 - 10	30
10 - 12	20
12 - 14	10
14 - 15	<3

ARS (Quoted by Lalor, Willcutt, and Curley)

Seed Cotton Storage

Prior to Ginning

Days Aging at 40C (Seed moisture content = 12%)

Test	0	4	8	12	16	20
	Percentage					
Std. Germ.	86	86	81	78	75	73
TZ	88	87	84	81	77	72
Cold Test	84	71	64	57	45	39
Acc. Aging	80	60	53	43	25	2

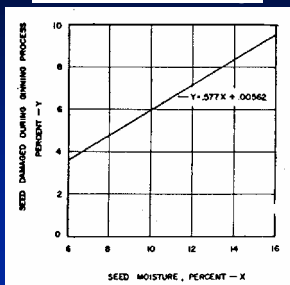
Bishnoi

Ginning

Drying
Gin Operation
Cooling/Aeration

Ginning

Mechanical Damage



Watson and Helmer

Ginning

Mechanical Damage

Seed Class	Germination %	GH Emergence %
1 (no damage)	90	87
2 (seed coat scratched)	87	80
3 (seed coat broken; embryo not visible)	79	75
4 (seed coat broken; embryo visible)	60	62
5 (seed coat section removed; embryo damaged)	27	30

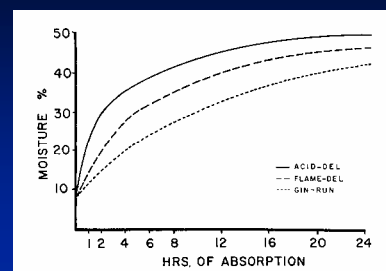
Green and Minton

Conditioning

Delinting

- Acid (HCl, H₂SO₄)
 - Time of Exposure
 - Heat
 - Neutralizing
- Gravity Table
- Seed Treatment (s)

Seed Storage



Helmer

Seed Storage

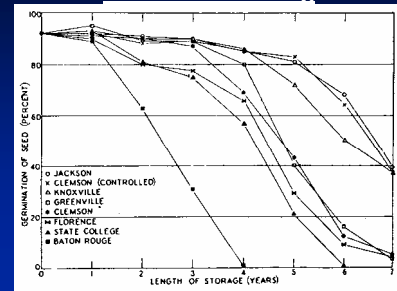
After Conditioning

Condition	Years of Storage					
	0	4	6	11	16	20
	%germination					
10C sealed	92	96	80	86	92	41
Room Temp						
Sealed glass	92	95	66	0		
Paper env.	91	88	8			

Bockholt

Seed Storage

After Conditioning



Simpson

Cliché

Store only good quality seed!

Keep it cool and dry!

THANK YOU

