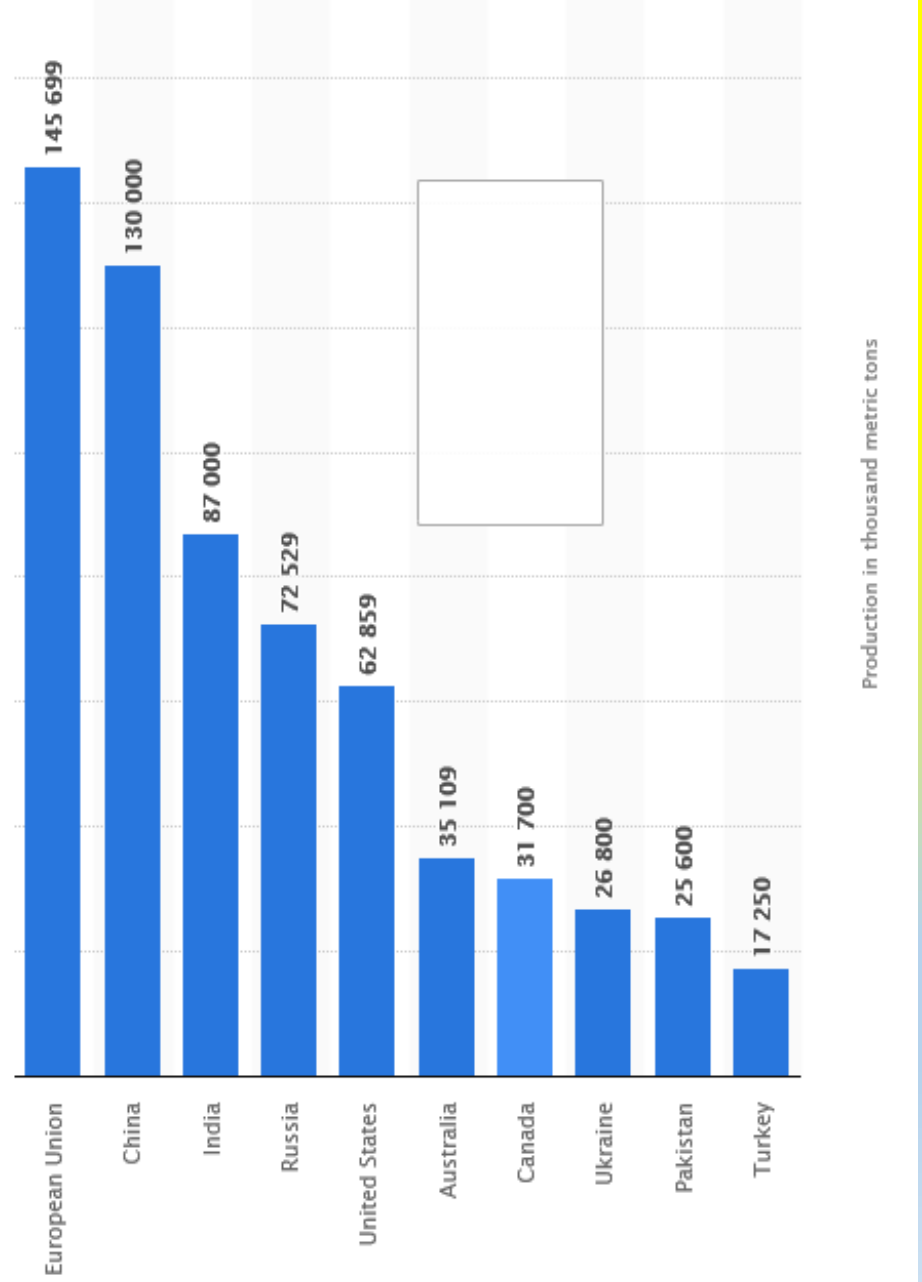




# آفات المحاصيل الحقلية الحشرية

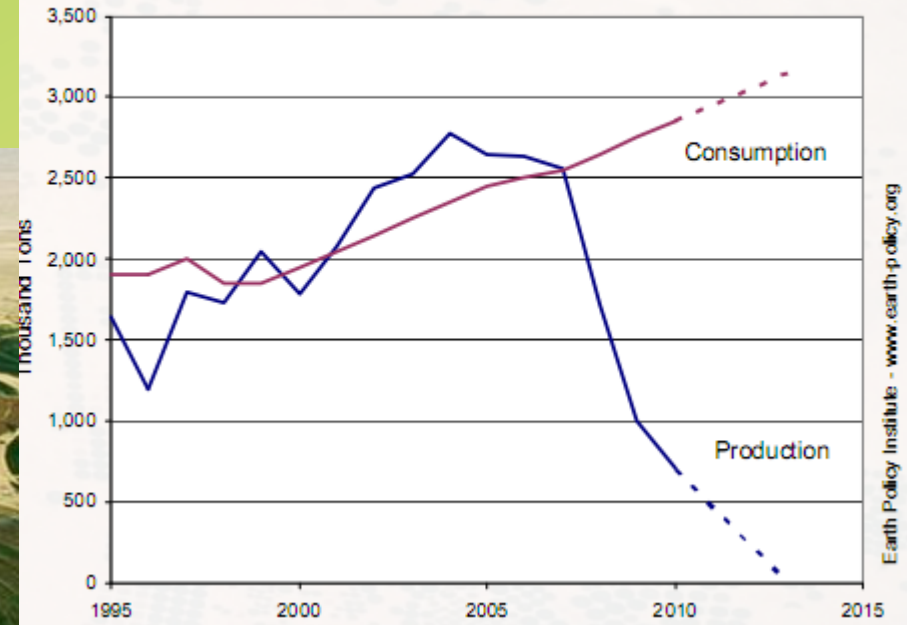


# Largest wheat producing countries worldwide in 2016/2017 (in 1,000 metric tons)



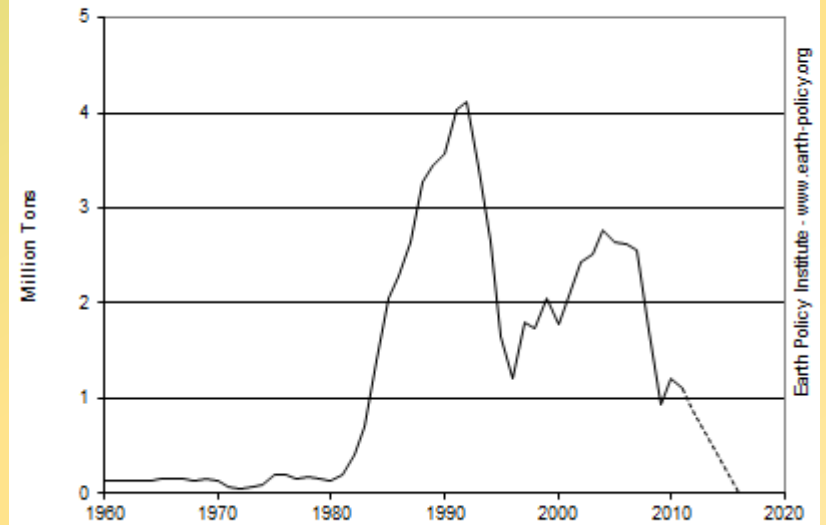


Wheat Production and Consumption in Saudi Arabia, 1995-2010, with Projection to 2013



Earth Policy Institute - www.earth-policy.org

Wheat Production in Saudi Arabia, 1960-2011, with Projection to 2016



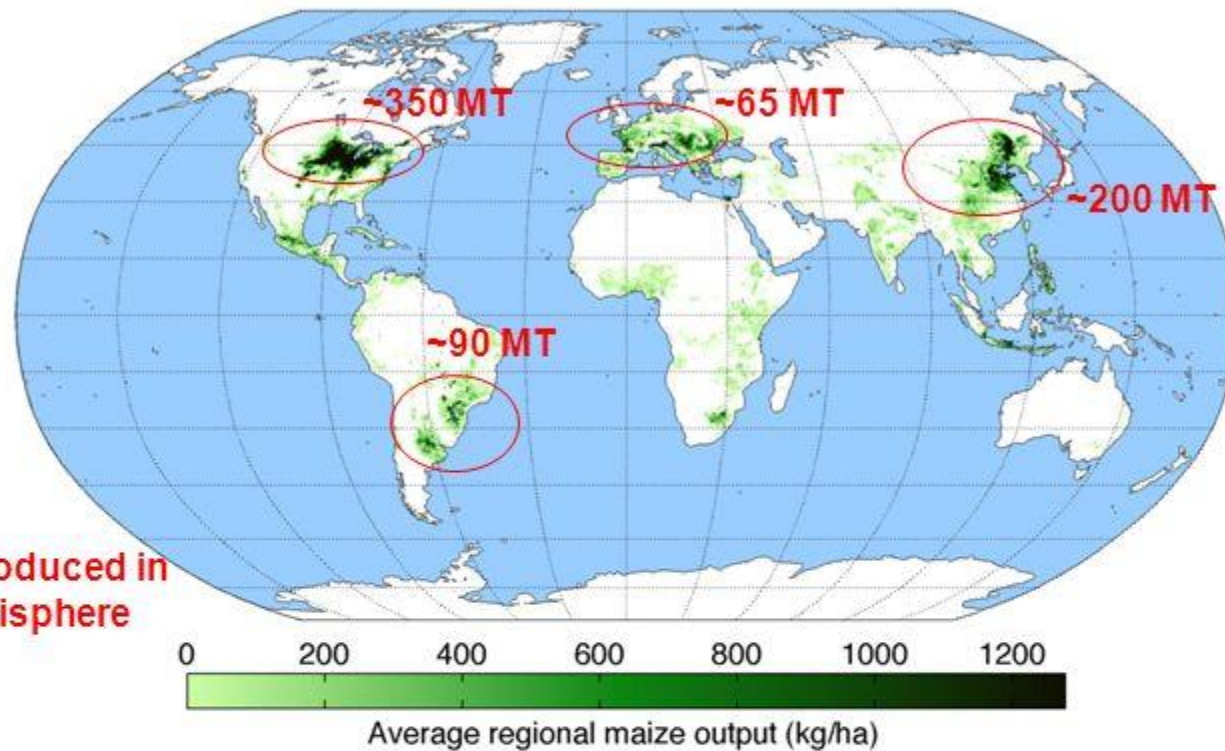
Earth Policy Institute - www.earth-policy.org



## Top ten barley producers (million metric tone)

Russia	17.9
France	12.9
Germany	12.3
Ukraine	11.8
Canada	9.5
Australia	8.1
Turkey	7.3
United Kingdom	6.8
United States	4.9
<u>Poland</u>	<u>4.0</u>
<b>World total</b>	<b>152</b>

# Global Corn Production



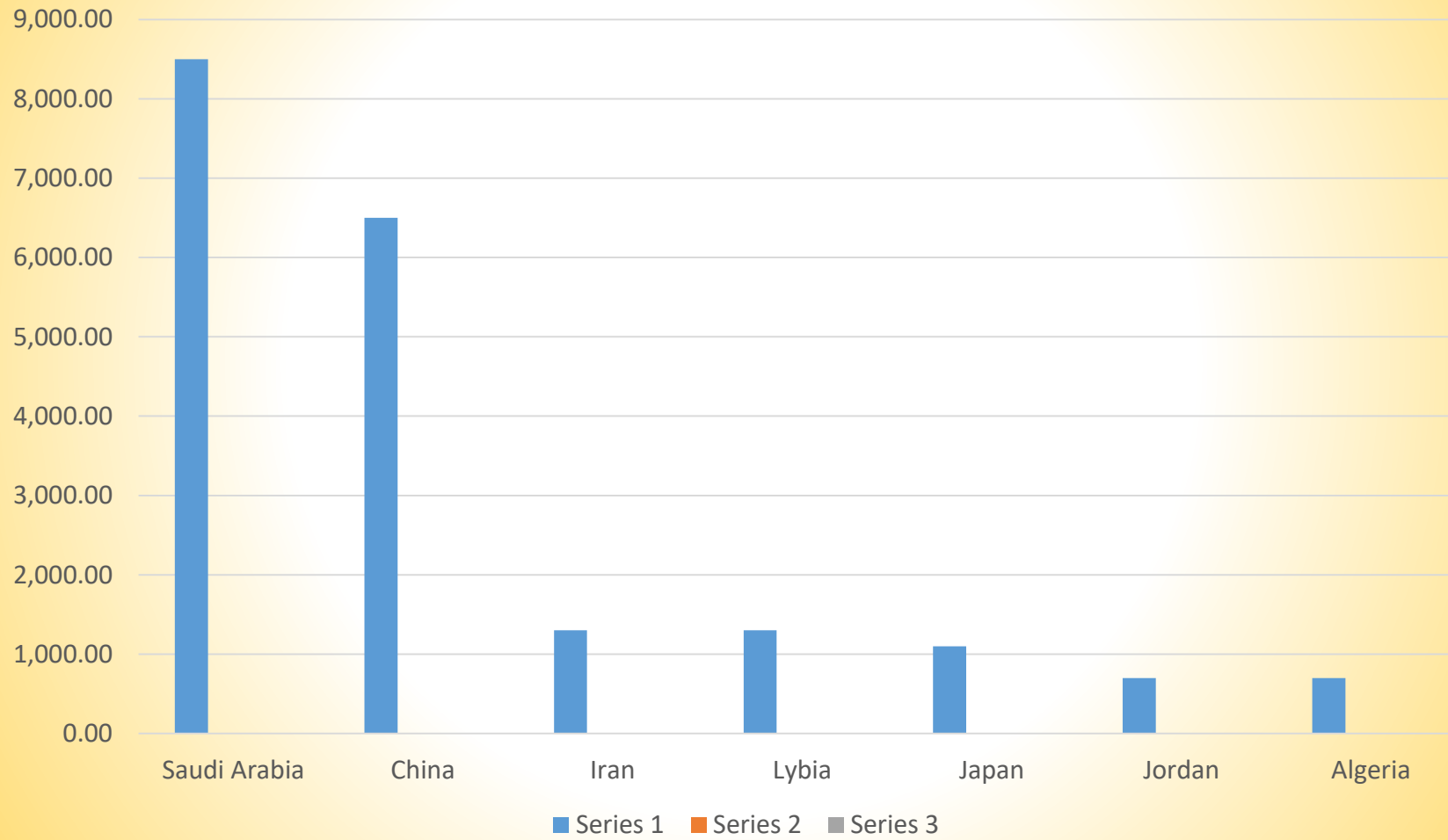
>80% corn produced in northern hemisphere

## 2011 Global Corn Statistics

Production			Consumption			Exports			Imports		
Rank	Country	MT	Rank	Country	MT	Rank	Country	MT	Rank	Country	MT
1	United States	314	1	United States	280	1	United States	41	1	Japan	15
2	China	193	2	China	188	2	Brazil	14	2	Mexico	11
3	Brazil	70	3	EU-27	68	3	Ukraine	14	3	South Korea	7
4	EU-27	65	4	Brazil	54	4	Argentina	13	4	EU-27	6
5	Ukraine	23	5	Mexico	30	5	India	4	5	China	5
	World	874		World	864		World	99		World	94

Source: USDA, *Production, Supply, & Distribution (PSD)*, <http://www.fas.usda.gov/psdonline>

## Barley Imports by Country in 1000 MT









## حشرات المحاصيل الحقلية

حشرات المن  
صانعات الأنفاق  
دودة الذرة (دودة ثمار الطماطم)  
قافزات الأوراق  
الدودة القارضة  
دودة ورق القطن  
ثربس القمح  
الجراد  
النطاطات  
دبور الحنطة المنشاري

Sesamia cretica دودة القصب الكبرى  
Ostrina nubilalis دودة الذرة الاوربية



# دودة القصب الكبيرة



Order : Lepidoptera

Family : Noctuidae

S.N. : *Sesamia cretica*





دودة القصب الكبيرة  
*Sesamia cretica*



دودة القصب الكبيرة  
*Sesamia cretica*







دودة القصب الكبيرة  
*Sesamia cretica*



Developmental stages of the African pink stemborer, *Sesamia calamistis*

تخترق اليرقات الساق وتتحرك بداخلة الى **الأعلى**، وتظهر على السيقان فتحات  
يظهر فيها براز اليرقات  
وتستمر اليرقات في الحفر في الساق متجهة الى الأعلى وقد يسبب **موت القمة**  
النامية





***Sesamia nonagrioides***

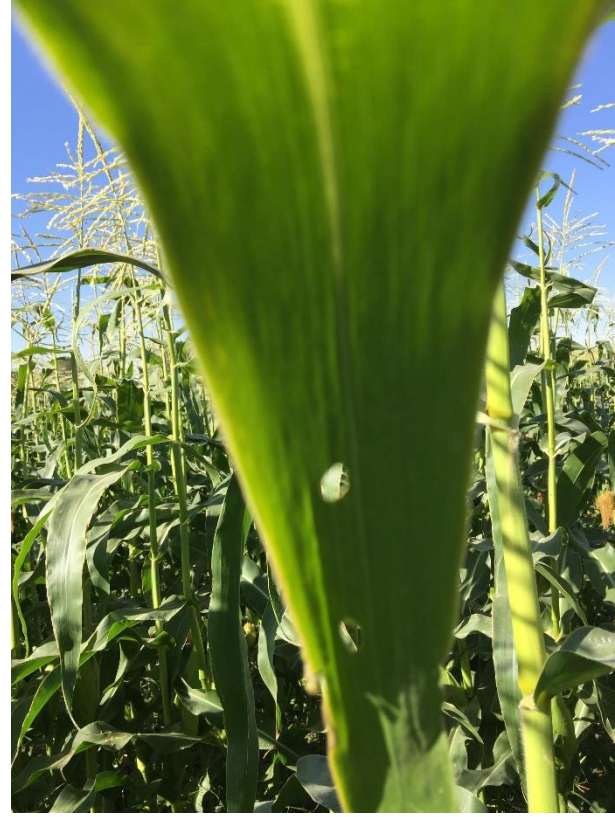
دودة القصب الكبيرة

*Sesamia cretica*

- البيات الشتوي بطور اليرقة في سيقان النباتات الجافة
- تضع الانثى البيض في كتل (٢٥ بيضة في كل كتله) تحت حواف أعماق أوراق النباتات النجيلية
- تتغذى اليرقات حديثه الفقس على الأوراق وتحفر في السيقان



عندما تتغذى اليرقات حديثة الفقس على الأوراق الملتفة تظهر  
ثقوب متكررة في صفوف





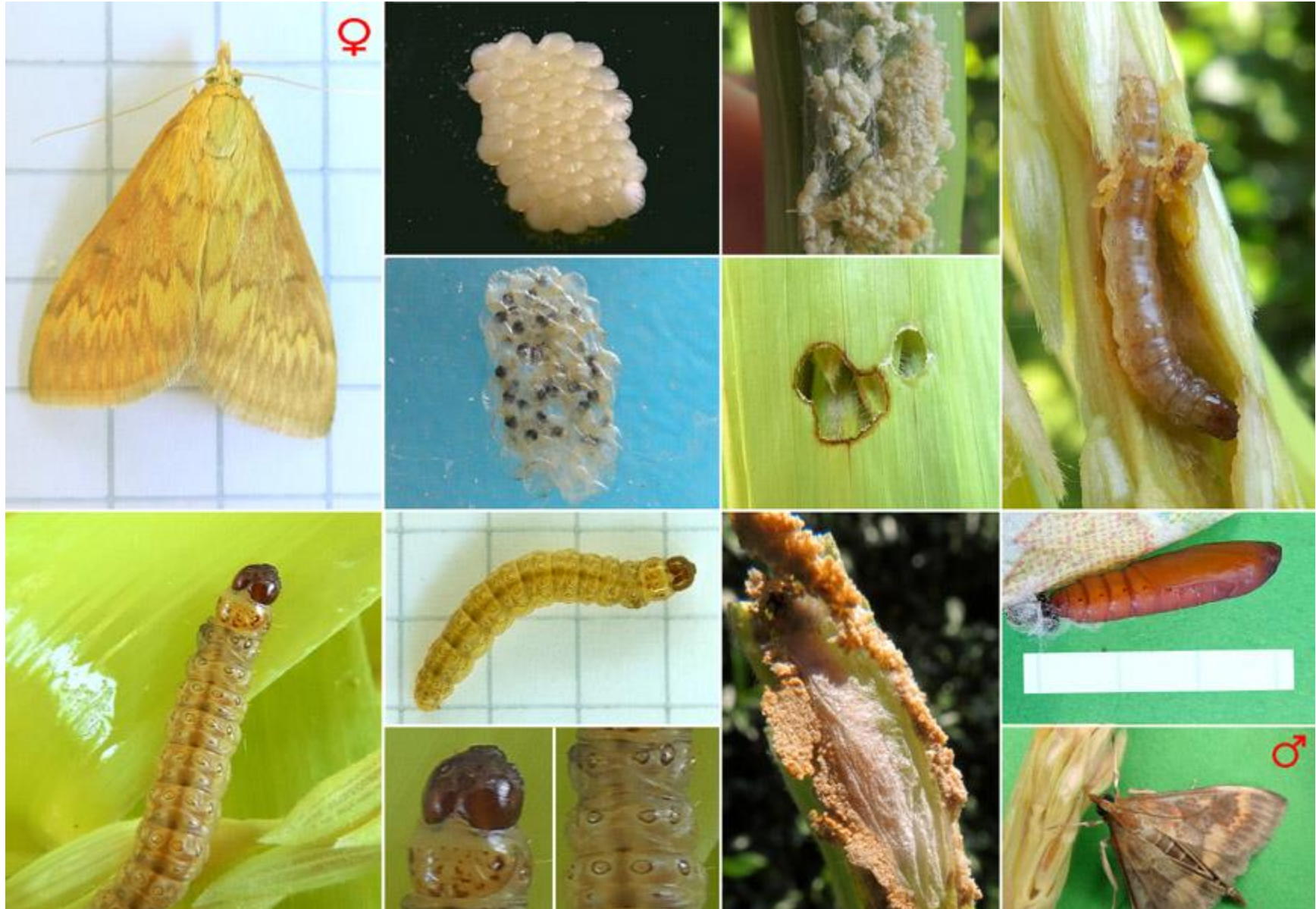


European corn borer (*Ostrinia nubilalis*)



دودة الذرة الاوربية







تخترق اليرقات الساق وتتحرك بداخلة الى الأسفل، وتظهر على السيقان فتحات  
يظهر فيها براز اليرقات  
وتستمر اليرقات في الحفر في الساق متجهة الى الأسفل وقد يسبب انكسار  
الساق  
وقد تدخل اليرقات داخل الكوز وتتغذى على الحبوب

European corn borer (*Ostrinia nubilalis*)

مظهر اصابة





5506227







UGA1481178



UGA3067080





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## المكافحة

التخلص من الحشائش النجيلية  
التخلص من مخلفات الذرة والقمح  
نزع النباتات المصابة واعدامها  
الدورة الزراعية  
الرش

## Fall Armyworm



- Reported to be a pest on seedling wheat in the fall.
- Brownish color, but varies from green to almost black.
- Dark head with prominent inverted Y on front.
- Spines and hairs on body.
- 4 black spots arranged in square on top of 8<sup>th</sup> abdominal segment.

# True Armyworm

# Fall Armyworm

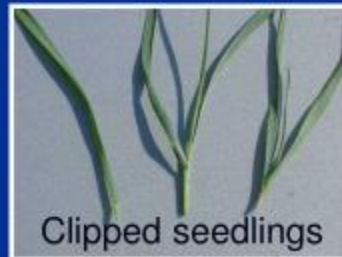
Both have four abdominal prolegs and are about 1.5 inches in length when full grown.





# Worm Damage to Seedling Wheat in Fall

Suspected Pest/s: Fall Armyworm and Cutworm



# True Armyworm



- Greenish color, but varies.
- Brownish head with honeycombed markings.
- Smooth body, no hairs or spines.
- Orange stripes on both sides of body.
- Each proleg has brownish or dark colored band on outer sides.

# Stink Bugs

## Rice Stink Bug and Southern Green Stink Bug

- Occasional pest, more so in south LA.
- Damage developing seed grain with piercing-sucking mouthparts.
- At milk stage or earlier (flowering): treat when 10% of seed heads have stink bugs.
- At soft dough stage, treat when 25% of seed heads have stink bugs.





# Aphids



English grain aphid



Oat bird cherry aphid



Corn leaf aphid



Yellow sugarcane aphid



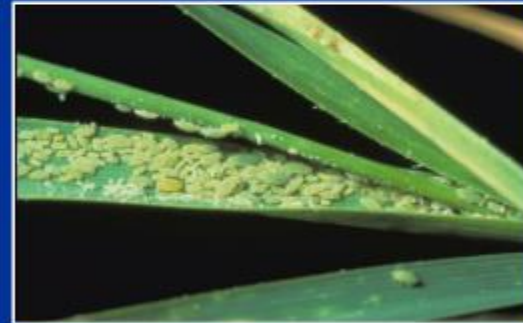
Greenbug



Russian wheat aphid

# Russian Wheat Aphid

- Present in 16 western states on wheat and barley
- First US detection was in Muleshoe, TX in 1986



# Hessian Fly

- Important pest of wheat, but rarely a problem in the deep south states.
- Outbreaks in the southeast in 1984-1985 and 1985-1986.
- Outbreak in Alabama in 1989.
- Detected in southwest Alabama in 2006.
- Detected in collections taken from Louisiana in 2000.



Larva (Maggot)



Pupa (Flaxseed)



# Unit 6: Wheat Insect Diseases

# Unit 6: Wheat Insect Diseases

## Hessian Fly •

- Damage can occur in the fall or spring East of 100<sup>th</sup> meridian •
- Injury caused by maggots located between leaf sheath & stem •
  - Suck juices from stem •
  - Kills many small tillers •
  - Older stems break before harvest •
  - Fall infestations •
- May kill plant before it is established •

# Unit 6: Wheat Insect Diseases

Female fly deposits eggs on young wheat •

Prevention •

Sow wheat after last wave of adults has died •

About Oct. 6<sup>th</sup> (fly free date) •

Crop rotation •

Plow under infested fields •

Plant resistant varieties •







# Unit 6: Wheat Insect Diseases

## Wheat Jointworm •

Damage 2<sup>nd</sup> only to Hessian fly east of Mississippi river •

Small grub lives on stem feeding on plant juices •

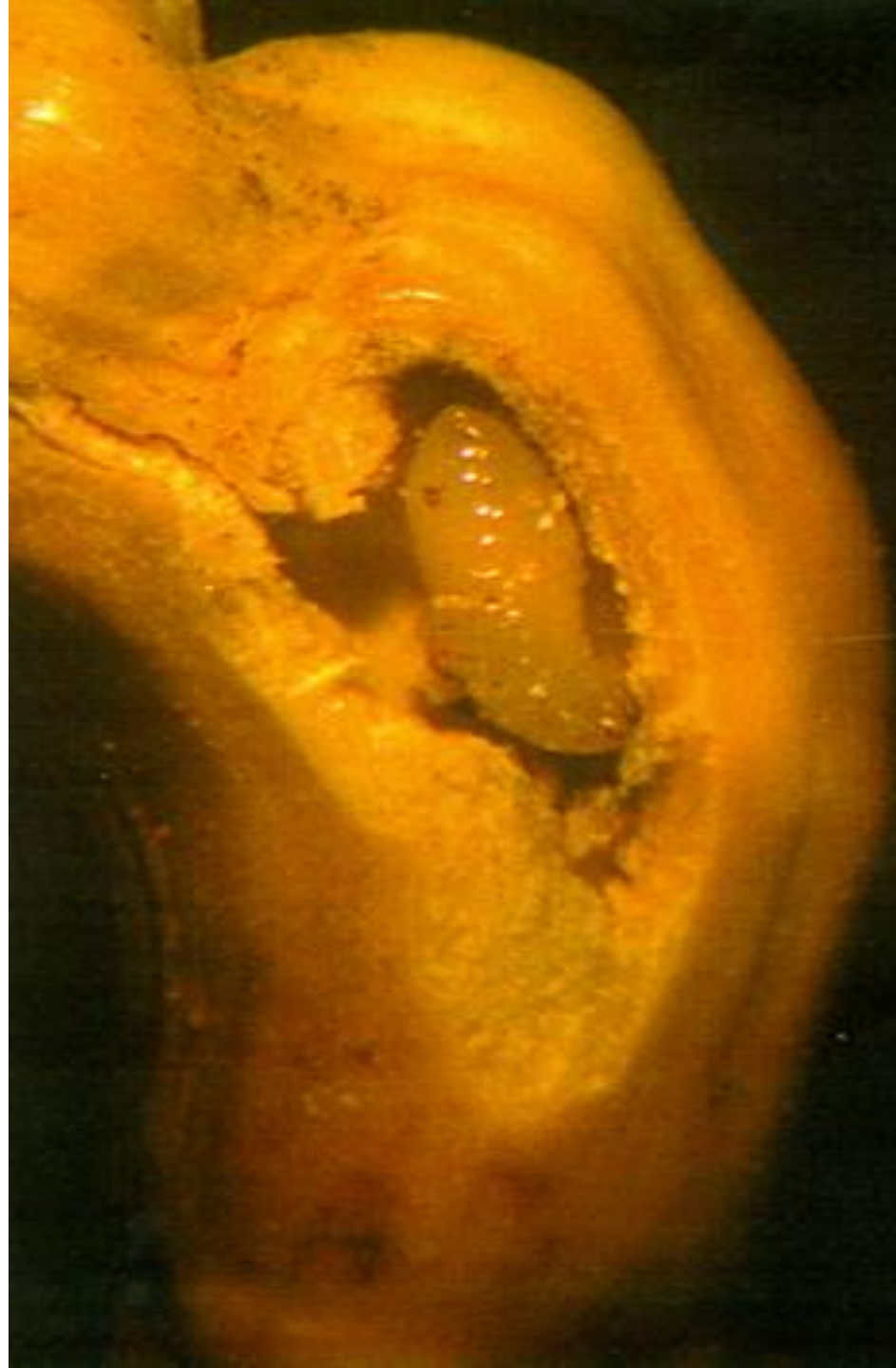
Wart-like swellings above the node •

Egg laid by a black ant-like bug w/ wings •

Damage due to lodging •

Can be moderate to severe •





# Unit 6: Wheat Insect Diseases

## Control •

- Deep plow infested straw stubble •

- Jointworm adults cannot emerge •

- Can be tough to fight if wheat is seeded w/ some other legume •

## Wheat Strawworm •

- Affects wheat states east of Mississippi river •

- Occurs after infested stubble is left lay •

# Unit 6: Wheat Insect Diseases

- 2 generations/yr

- Spring form

- Kills each tiller it infests

- Tiller becomes bulb-like at its point of infestation

- Most injurious of winter wheat

- Summer form

- Less severe for winter wheat, most severe for spring wheat

- Don't plant continuous wheat to help control



# Unit 6: Wheat Insect Diseases

## Grasshoppers •

- Eggs deposited just below soil surface •
- Can be destroyed by tillage deeper than 5" •
- Young can eat leaves, stem, and head in severe infestation •
- Control w/ insecticide during the nymph stage •

# Pest Control

## Pests:

There are three main pests of barley, ☉ the wireworm, the leather jacket and the Gout fly. Aphids although they don't harm the Barley itself transmit the disease *Sitobion avenae* which discolours the leaves.



## Wireworms: ☉

- Are the larvae of the click beetle.
- Only cause problems if sowing barley after a ley and even then in the first two years only as these larvae eat the roots.
- Can be controlled using a dual-purpose seed dressing.



## Leather Jackets:

- Are the larvae of several species of Crane fly or “Daddy long Legs”.
- Adult crane fly lays eggs on grass and the larvae of the crane fly feeds on grasses
- Must be controlled by spraying with insecticides or bait.





## The Gout fly (Larvae):

- Attack late sown crops only.
- Feeds on the stem and the ear.
- Really only prevented by early sowing.

