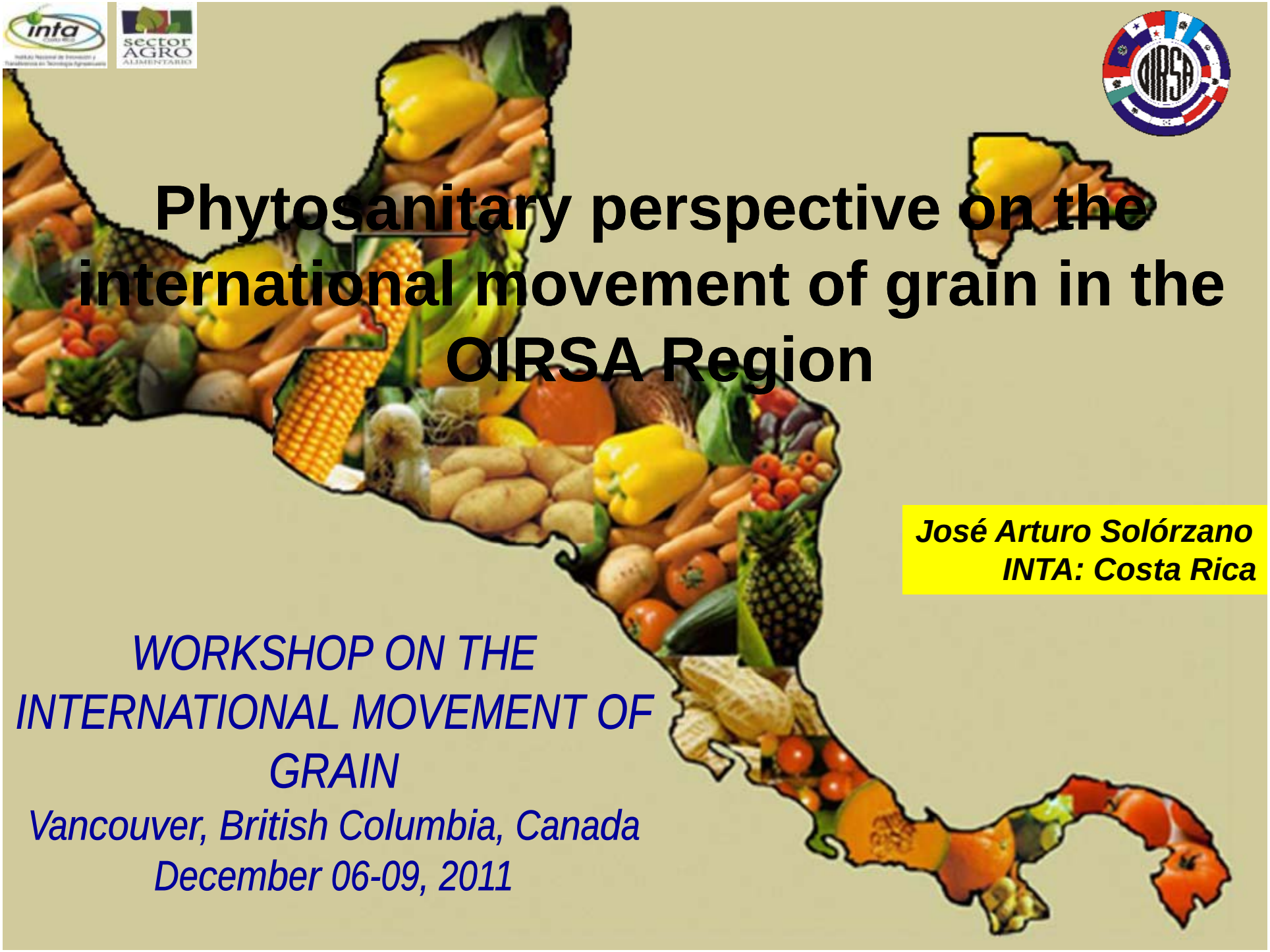


Phytosanitary perspective on the international movement of grain in the OIRSA Region

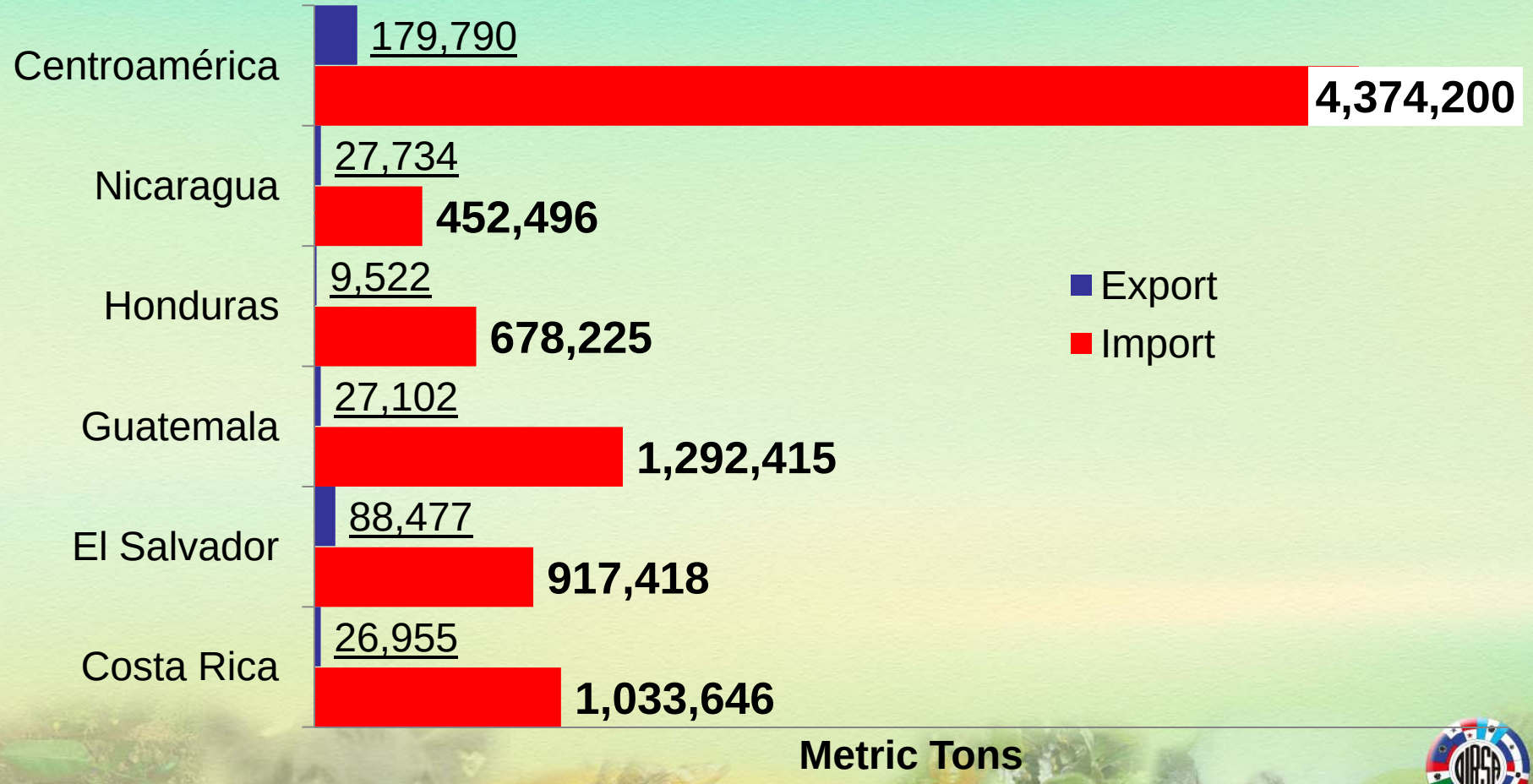
José Arturo Solórzano
INTA: Costa Rica

WORKSHOP ON THE INTERNATIONAL MOVEMENT OF GRAIN

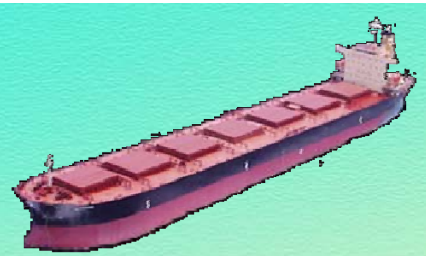
Vancouver, British Columbia, Canada
December 06-09, 2011

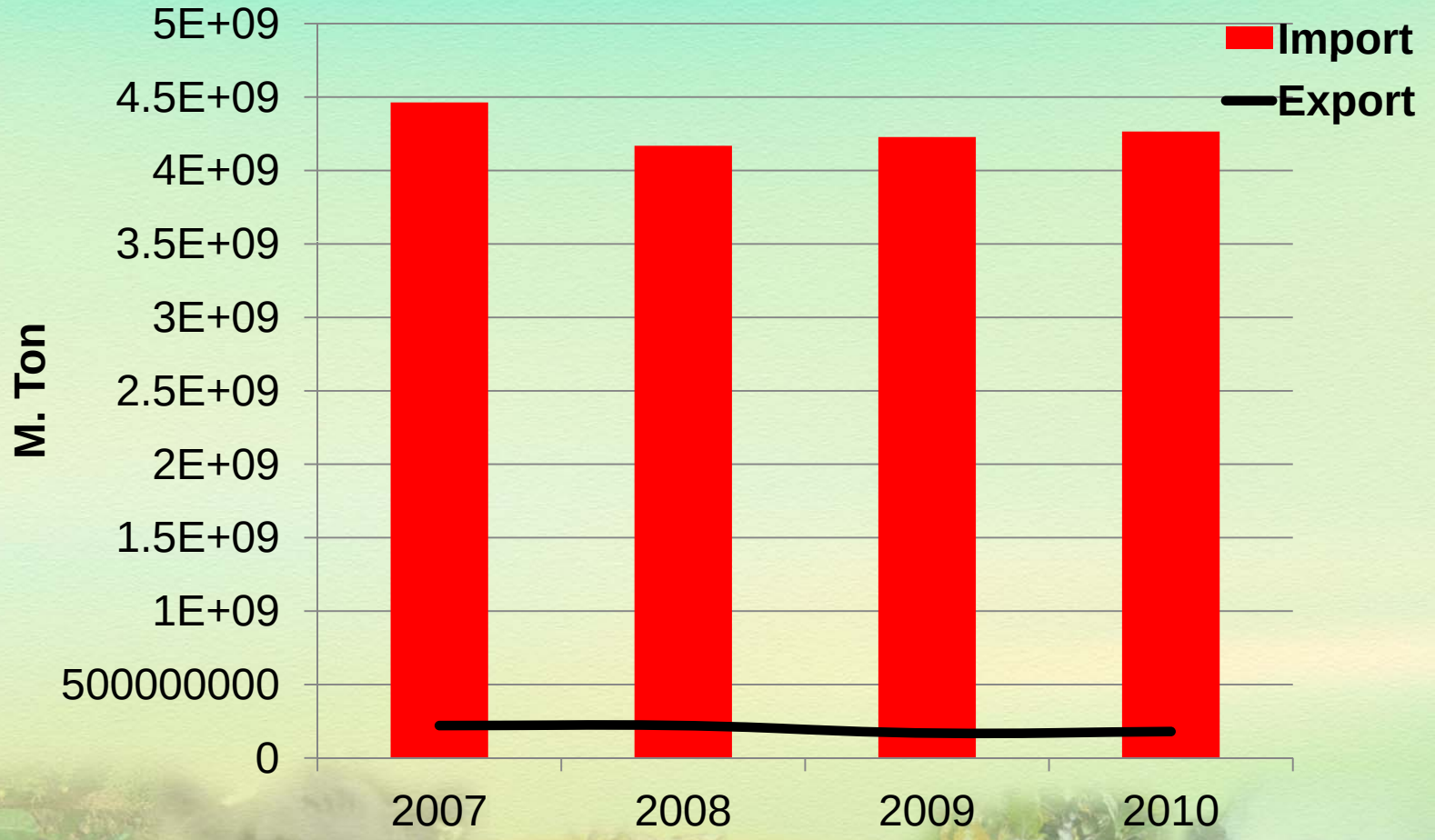
GRAIN TRADE:
Imports vrs Exports

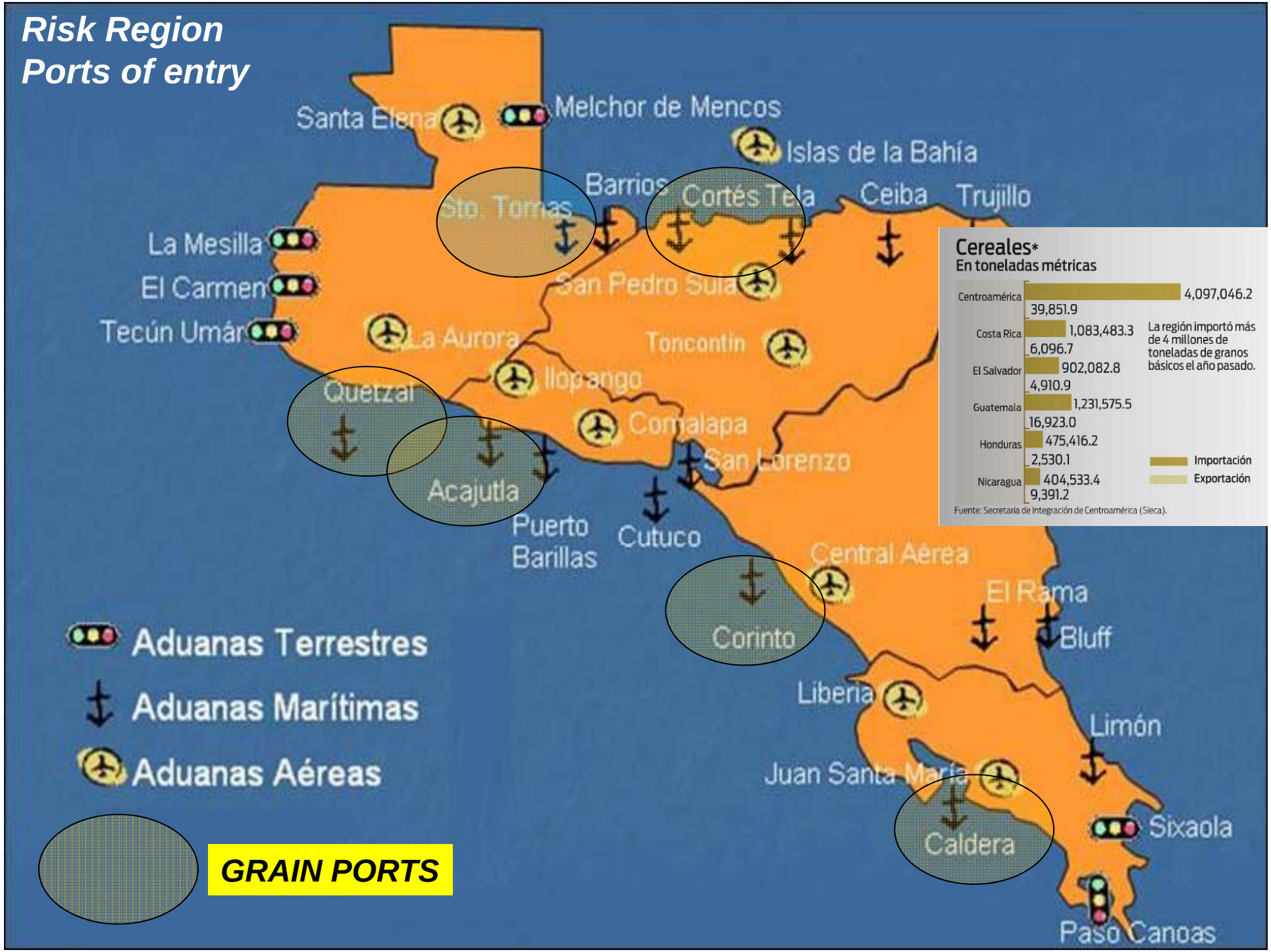
2010



Historic Grain Trade



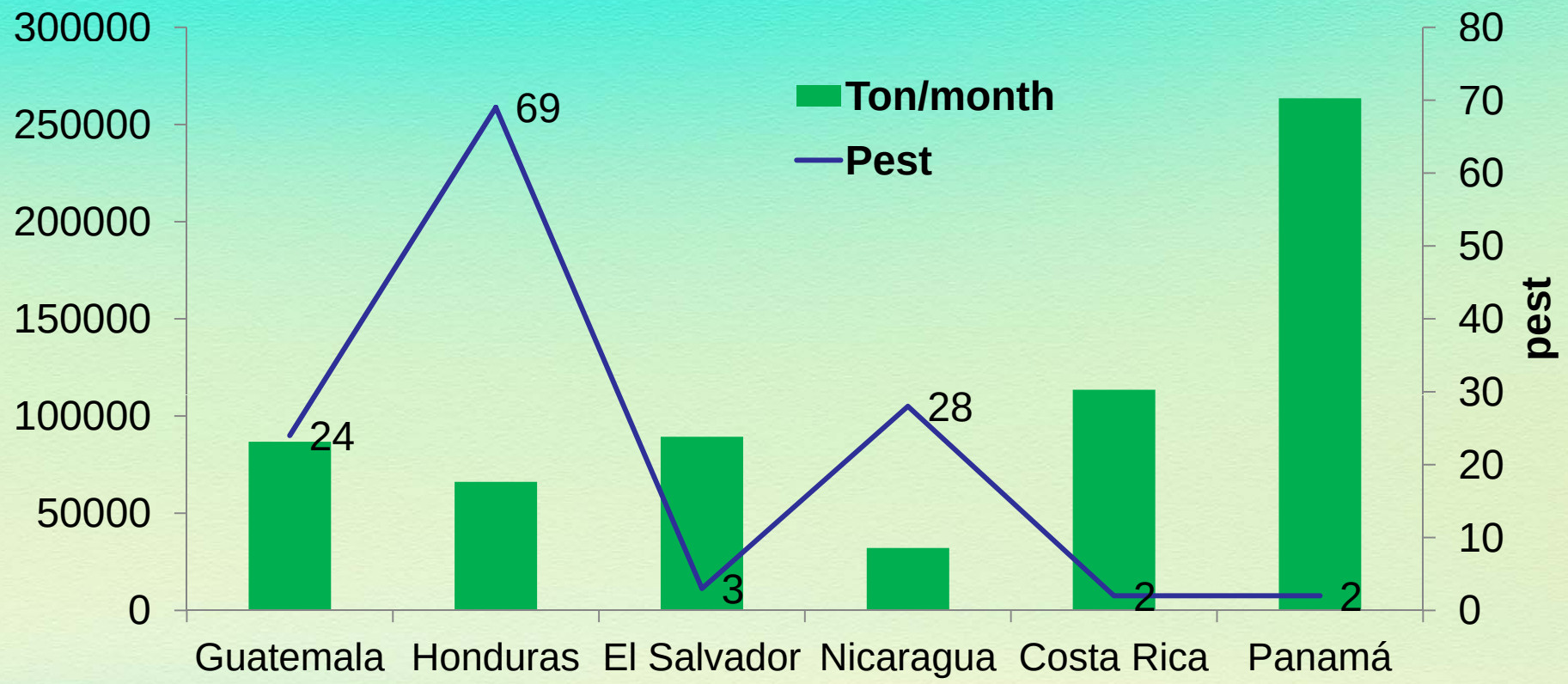



Risk Region
Ports of entry
Santa Elena
Melchor de Mencos
Islas de la Bahía
Barrios
Cortés Tela
Ceiba
Trujillo
Sto. Tomas
La Mesilla
El Carmen
Tecún Umán
San Pedro Sula
La Aurora
Toncontin
Ilopango
Quetzal
Comalapa
San Lorenzo
Acajutla
Puerto Barillas
Cutuco
Central Aérea
El Rama
Bluff
Corinto
Liberia
Limón
Juan Santa María
Caldera
Sixaola
Paso Canoas
Aduanas Terrestres
Aduanas Marítimas
Aduanas Aéreas
GRAIN PORTS
Cereales*
En toneladas métricas
Centroamérica 4,097,046.2
39,851.9
Costa Rica 1,083,483.3
6,096.7
El Salvador 902,082.8
4,910.9
Guatemala 1,231,575.5
16,923.0
Honduras 475,416.2
2,530.1
Nicaragua 404,533.4
9,391.2
La región importó más de 4 millones de toneladas de granos básicos el año pasado.
Importación
Exportación
Fuente: Secretaría de Integración de Centroamérica (Sieca).

PUERTOS	T.M. Granos / MES	Plagas Intercp / MES	PRODUCTOS DE MAYOR RIESGO	
ACAJUTLA	89,341	3	Granos de EUA	
BALBOA	263,500	1.3	Harinas y Almidones/ EUA. -Chile-Argentina, México, Colombia Granos/ EUA, Italia, Tailandia	
CALDERA	113,515	2	Granos de EUA, Frijol China	
CORINTO	32,129	28	Maíz, Arroz; Trigo; Harina de soya, EUA	Alimentos Para camarón (Ecuador, Mexico; Perú, EUA
PUERTO QUETZAL	86,791	24	Ajonjolí / India	Granos secos destilados /EUA Harina soya EUA
PUERTO CORTES	66,110	69	Salvado de trigo/Nigeria Granos EUA	

Solórzano y Otero. 2009 . Quarantine at OIRSA Region: Desafíos y amenazas: Portal Agrosanitario. www.oirsa.org/

Grains and Pest



Solórzano y Otero. 2009 . Portal Agrosanitario

One Shipment: **Pentatoma sp., Tribolium castaneum, Anthicus sp.*, Formicormus sp.*; Silvanus sp.*; Ahasverus advena*; Orizaephilus mercatus*; Stetidota sp.; Diabrotica sp.; Xyleborus sp.*; Blapstinus discolor*; Pyralis farinalis*.**

CASE STUDY: Grain pest by Country

HONDURAS

2009: 640 Intercp 57 especies

14	*Gnathocerus*	*cornutus*
73	*Alphitobius*	*diaperinus*
7	*Tenebroides*	*mauritanicus*
9	*Sitophilus*	*zaemais*
10	*Tribolium*	*confusum*
19	*Sitophilus*	*sp*
22	*Tribolium*	*sp*
58	*Tribolium*	*castaneum*

2010: 609 Intercep 113 especies

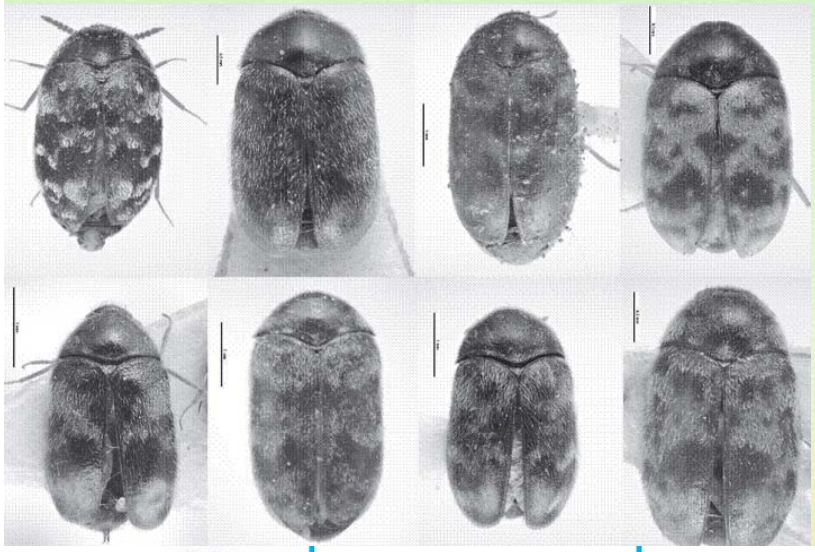
8	*Popillia*	*japonica*
8	*Trogoderma*	*sp*
10	*Sitophilus*	*sp.*
32	*Tribolium*	*castaneum*
33	*Alphitobius*	*diaperinus*

Freq.

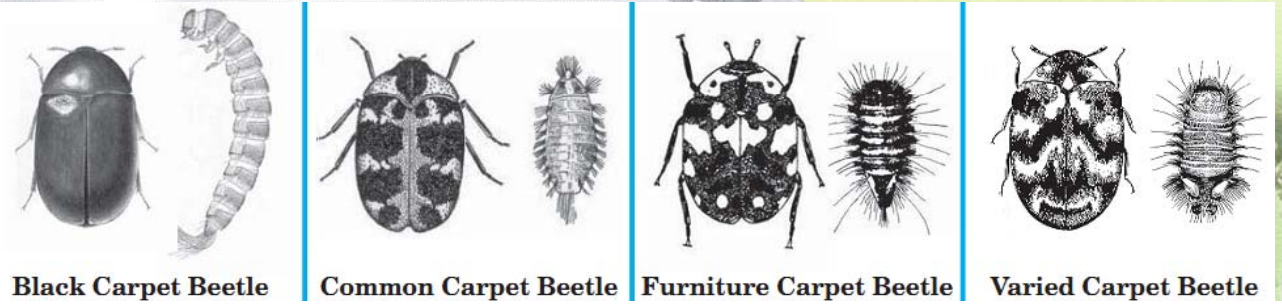
2011: 1011 intercep. 279 especies,

11	*Euschistus*	*sp*
11	*Gnatocerus*	*cornutus*
82	*Alphitobius*	*diaperinus*
11	*Tenebroides*	*mauritanicus*
13	*Sitophilus*	*oryzae*
14	*Sciara*	*sp*
14	*Tribolium*	*confusum*
18	*Palorus*	*sp*
44	*Tribolium*	*castaneum*

Quarantine (Live)PEST
>90% from USA.



- ***Popillia japonica***
- ***Trogoderma inclusum, variabile, ornatum, fantastica***
- ***Attagenus spp***
- ***Polygonum convolvulus***
- ***Xanthium strumarium***



Treatments at Ports of C. America

FACTS

- **Fumigation at CA ports**
  - **Implicates cost**
- **Phosphine / Methyl Bromide**
  - **72 hours**
- **In bay, silos, "National transit"**
  - **Additional costs**
  - **High risk**

- **Pests increase / Guatemala Apr- May 2008 .**
  - **Complaints from companies**

Pest	Guat	Hond
Trogoderma glabrum	1	1
T. variabile	2	5
T. ornatum	2	
T. fantastica	1	
T. versicolor	1	2

CUARENTENA

XXV REUNIÓN EXTRAORDINARIA DE LA COMISIÓN TÉCNICA

Cleaning of ship holds???

Figure 1. Consignments of rice to Egypt and Ethiopia from barge to ship. ADM, New Orleans. USA. July 008

FUMIGATION HANDBOOK

United States Department of Agriculture

Grain Inspection, Packers and Stockyards Administration

Federal Grain Inspection Service Washington, DC

•Acceptable Bulk Commodities.

Bulk grains that are acceptable include: barley, canola, corn, oats, rye, sorghum, soybeans, sunflower, triticale, wheat, and mixed grain.

Additionally, bulk rice (includes Brown rice for processing, Rough rice, and Milled rice), edible beans, peas, and lentils are acceptable for fumigation.

•c. Acceptable Commodity Temperatures.

Commodity temperatures must not be below 40 degrees Fahrenheit.

•d. Acceptable Fumigant Use.

•Fumigant Acceptable Use

•Methyl Bromide Stationary

•Metal Phosphide Stationary or In-Transit

Fumigant	Dosage/m^3	Dosage/1000 bushels	Minimum exposure days	Remarks
Phosphine	**1-2 g**	**35-70 g**	**4**	**7 days 10-15°C** 6 days 16-20°C 5 days 21- 25 °C

Bond, 1989,.FAO MANUAL of Fumigation for insect control

EFFECTIVE FUMIGATION

*"**Cold temperate fumigations are often unsuccessful**. Why? Stored product **insects have the ability** to shutdown their respiration, **hibernate, and tolerate phosphine for up to 10 days at low temperatures**. Warm grain and structures offer better conditions for 100% mortality of all stages of insect life. The insects can shut down their bodies during the cold winter months and survive sub-zero temperatures outdoors by creating a glycol antifreeze to lower the freezing of liquids in their bodies. A fumigant label may say that you can use the product below 60°F/15°C but this takes much longer to be effective. **The difference of a complete kill with 200 parts per million of phosphine at 90°F/32°C and 40°F/5°C may be 10 times longer for the colder temperature**. Fumigation failures often occur because applicators don't allow for the correct duration to allow the solid phosphine formulation to break down, penetrate the grain, and affect a kill. **Not only the insect adults but the tolerant eggs and pupae stages are not as active** and thus don't inhale the fumigant as much. Remember the saying when using phosphine: **The longer the better"**.*

JOHN MUELLER PRESIDENT FSS. FUMIGANTS AND PHEROMONES 40. (4) 2009

Visit USA- Louisiana
Grain importation/Rice from CA.

- **Presence of regulated pest…**

- **Contamination in ship holds**
- **Standard dose: 1,17 g/m³ » 5°C**
- **EXPOSURE PERIOD: 2 – 8 days**
- **Application method: Ventilation – J**
- **LACK OF TRANSIT MONITORING**

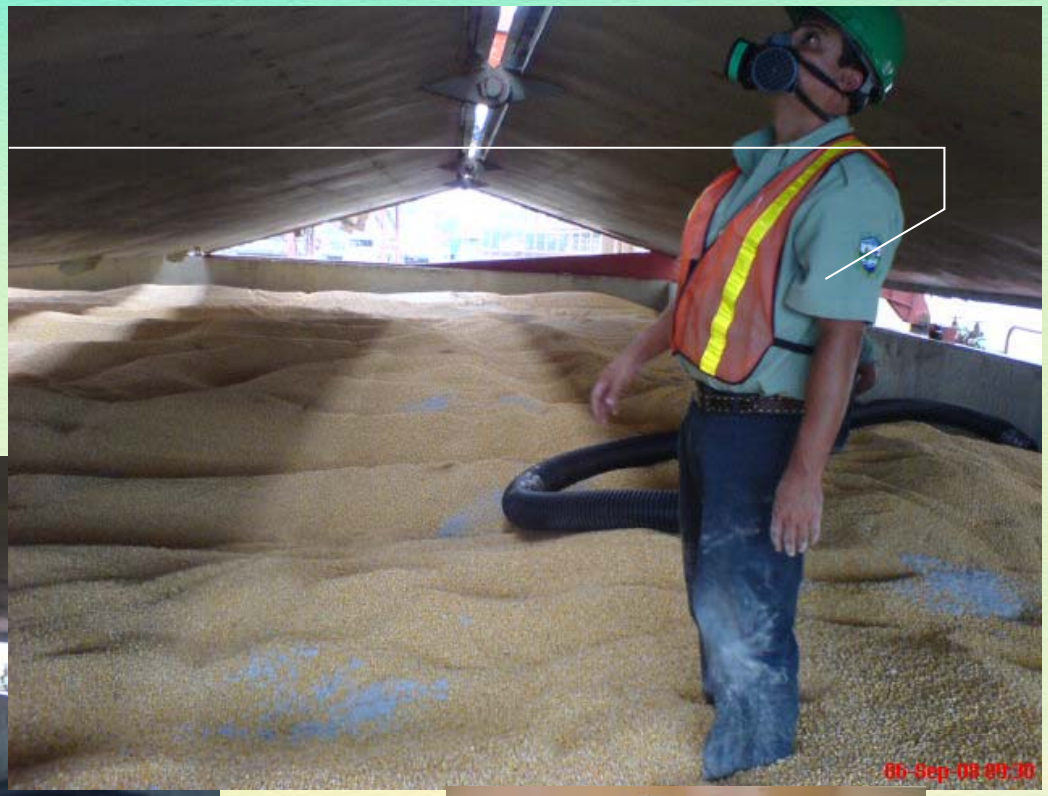
Mexico
Guatemala
Honduras
Costa Rica
Panama

Preshipment Home Treatments

Phosphine residues in ship hold at Quetzal Port, Guatemala.

Sampling in hold of ship fumigated with phosphine, J system. Quetzal Port, Guatemala

High risk of intoxication due to exposure to lethal doses



Destination – SHIP Fumigation:

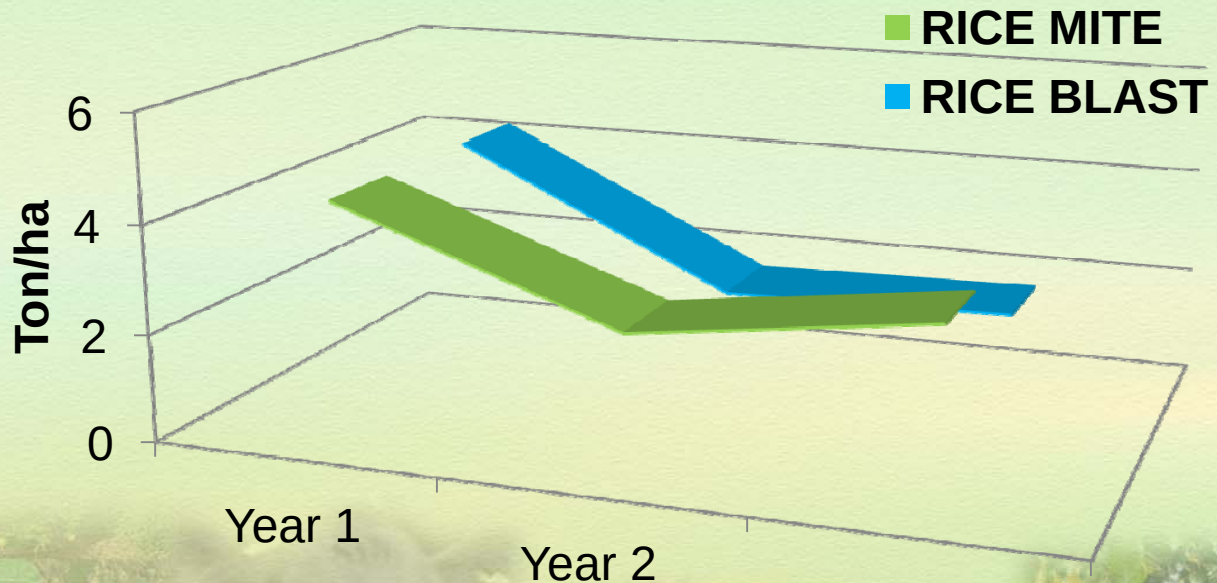
Conclusions

1. *Grain movement in OIRSA region is important.*
2. *Preshipment grain treatments are low effective.*
3. *Big amount of residues in transit treatment are dangerous for human safety.*
4. *Quarantine treatments have to be applied in the destination country.*

Actual Economic Impact: Rice

Panicule Rice Blast (*Burkholderia glumae*

Panicule Rice Mite (*Steneotarsonemus spinki*)



MUCHAS GRACIAS