



**Walnut varieties and orchards with
lateral bearing cultivars.**

**Economic and technical aspects
of walnut orchards establishment**

TBILISI, GEORGIA 01 Oct. 2019

Presentation agenda

- ▶ Introduction of panelist
- ▶ Lateral bearing walnut varieties in EU
- ▶ Economical and technical aspects of walnut orchards establishment
- ▶ Conclusions: What can significantly do the georgian walnut growers in a Walnut world?



Introduction of panelist


Drd. Ing. Iosif Karoly KISS


iosif.kiss@nucifere.com


nucifere@yahoo.com


UNIVERSITY OF AGRONOMIC SCIENCES AND VETERINARY MEDICINE OF
BUCHAREST





 Dashboard


 My profile


 Legal identity

 Bank account

 Contracts

 Payments

 Help

 Mr. Iosif- Karoly Kiss (EX2019D355845) 

 Born on 04/03/1973

Nationality: Romania

Contact details

nucifere@yahoo.com
+40736379864
285 C, Bisericii street, Unirea, Jud. Bistria Nasaud
Unirea
420005 Romania

Area of expertise 8

Horticulture, viticulture [Agriculture, Forestry, and Fisheries]

Open field horticulture [Horticulture, viticulture]

Protected horticulture [Horticulture, viticulture]

Horticultural economics [Agricultural economics]

Horticulture and gardening [Agriculture]

Why lateral bearing walnut varieties in Georgia?

- ▶ The climate conditions are good for this kind of walnut trees, with a minimum of 3 degrees Celsius higher than in most Romanian areas where these varieties are planted
- ▶ Less vigour than terminal varieties
- ▶ High density planting scheme in the first 20-25 years
- ▶ The first crop : in 4th year after walnut orchard establishment
- ▶ High productivity related to the position of female buds on the walnut trees canopy
- ▶ Good quality and quantity of the kernel = high value of the crops = the profitable choice

Lateral bearing walnut varieties in EU

The most important varieties planted in EU

- ▶ **Chandler** (USA- California, Davis) = 8-10 tons/hectar (408 trees/ha)
- ▶ **Pieral- Lara**® (France, Pepiniere Lalanne)= 4-6 tons/ha (312 trees/ha)
- ▶ **Fernor**® (France , INRA Agri Obtentions)= 4-5 tons/ha (312 trees/ha)
- ▶ **Fernette**® (France, INRA))= 4-5 tons/ha (312 trees/ha)
- ▶ **Ferjean**® (France, INRA)=3,5-4.5 tons/ha (312 trees/ha)
- ▶ **Pescianski** (Moldavia)= 3.5-6 tons/ha (204 trees/ha)
- ▶ **Tulare** (USA)
- ▶ **Pedro** (USA)
- ▶ **Serr** (USA)
- ▶ **Howard** (USA) = 6-8 tons/ha(408 trees/ha)

Top 10 of lateral bearing walnut varieties (in my oppinion)

- ▶ Chandler
- ▶ Pescianski
- ▶ Howard
- ▶ Fernor®
- ▶ PIERAL-LARA®
- ▶ Hartley
- ▶ Tulare
- ▶ Pedro
- ▶ Serr
- ▶ Vina

CHANDLER

[HOME](#) » [PVP DATA & STATISTICS](#) » [PLUTO](#) »



[New: Video Tutorial](#)

The data currently in Plant Variety Database (PLUTO) was last updated on 2019-09-26.

[← back](#)

[← 38 / 709 ▶](#)

Record Detail

Record Description

country code	US
record type	PLP
species latin name	Juglans
species common name	Walnut tree
species UPOV code	JUGLA
grant number	PP04388
grant publication date	1979-02-28
grant start date	1979-02-28
end type	EXP
end date	1998-04-22
variety identifier	PP04388 P
variety denomination class	JUGLA
application number	05898597
application date	1978-04-22

Denominations

1978-04-21: Chandler: proposed
1979-02-27: Chandler: published
1979-02-27: Chandler: approved

Parties Concerned

Forde, Harold I. | Davis, CA: Applicant
Forde, Harold I. | Davis, CA: Breeder
California, The Regents of the University of | Berkeley, CA (U.S. corp.): Title holder

PESCIANSKI



HOME » PVP DATA & STATISTICS » PLUTO »

PLUTO: Plant Variety Database

New: Video Tutorial

The data currently in Plant Variety Database (PLUTO) was last updated on 2019-09-26.

[← back](#)

[◀ 4 / 4 ▶](#)

Record Detail

Record Description

country code	MD
record type	NLI
species latin name	Juglans regia L.
species common name	Walnut
species common name	NUC
species UPOV code	JUGLA_REG
variety denomination class	JUGLA
application number	1640439
application date	1997-03-06

Denominations

1997-03-05: PESCIANSKI: proposed
2004-12-23: PESCIANSKI: published

Parties Concerned

"INTREPRINDEREA PENTRU SILVICULTURA ?IARGARA?, MD": Applicant
"INTREPRINDEREA PENTRU SILVICULTURA ?IARGARA?, MD": Maintainer

HOWARD



HOME » PVP DATA & STATISTICS » PLUTO »

PLUTO: Plant Variety Database

New: Video Tutorial

The [data currently in Plant Variety Database \(PLUTO\)](#) was last updated on 2019-09-26.

← back

◀ 1 / 21 ▶

Record Detail

Record Description

country code	US
record type	PLP
species latin name	Juglans
species common name	Walnut tree
species UPOV code	JUGLA
grant number	PP04405
grant publication date	1979-04-11
grant start date	1979-04-11
end type	EXP
end date	1998-04-22
variety identifier	PP04405 P
variety denomination class	JUGLA
application number	05898596
application date	1978-04-22

Denominations

1978-04-21: Howard: proposed
1979-04-10: Howard: published
1979-04-10: Howard: approved

Parties Concerned

Forde, Harold I.|Davis, CA: Applicant
Forde, Harold I.|Davis, CA: Breeder
California, The Regents of the University of|Berkeley, CA (U.S. corp.): Title holder

FERNOR



HOME » PVP DATA & STATISTICS » PLUTO »

PLUTO: Plant Variety Database

New: Video Tutorial

The data currently in Plant Variety Database (PLUTO) was last updated on 2019-09-26.

[← back](#)

[◀ 5 / 6 ▶](#)

Record Detail

Record Description

country code	FR
record type	NLI
species latin name	Juglans regia L.
species UPOV code	JUGLA_REG
breeder reference	H 94-12
grant number	0066868
grant start date	1995-08-30
variety denomination class	JUGLA
application number	0066868
application date	1993-01-06

Denominations

1993-01-15: Fernor: proposed
1993-01-15: Fernor: published
1993-04-15: Fernor: approved
2015-01-01: : renewal start

Parties Concerned

Agri Obtentions SA (FR): Applicant
Institut National de la Recherche Agronomique (FR): Breeder
(Inconnu) (-)/Institut National de la Recherche Agronomique (FR): Maintainer

PIERAL- LARA



HOME » PVP DATA & STATISTICS » PLUTO »

PLUTO: Plant Variety Database

New: Video Tutorial

The data currently in Plant Variety Database (PLUTO) was last updated on 2019-09-26.

[← back](#)

[◀ 1 / 2 ▶](#)

Record Detail

Record Description

country code	FR
record type	NLI
species latin name	Juglans regia L.
species UPOV code	JUGLA_REG
breeder reference	PIERAL
grant number	0053942
grant start date	1981-03-28
variety denomination class	JUGLA
application number	0053942
application date	1980-01-02

Denominations

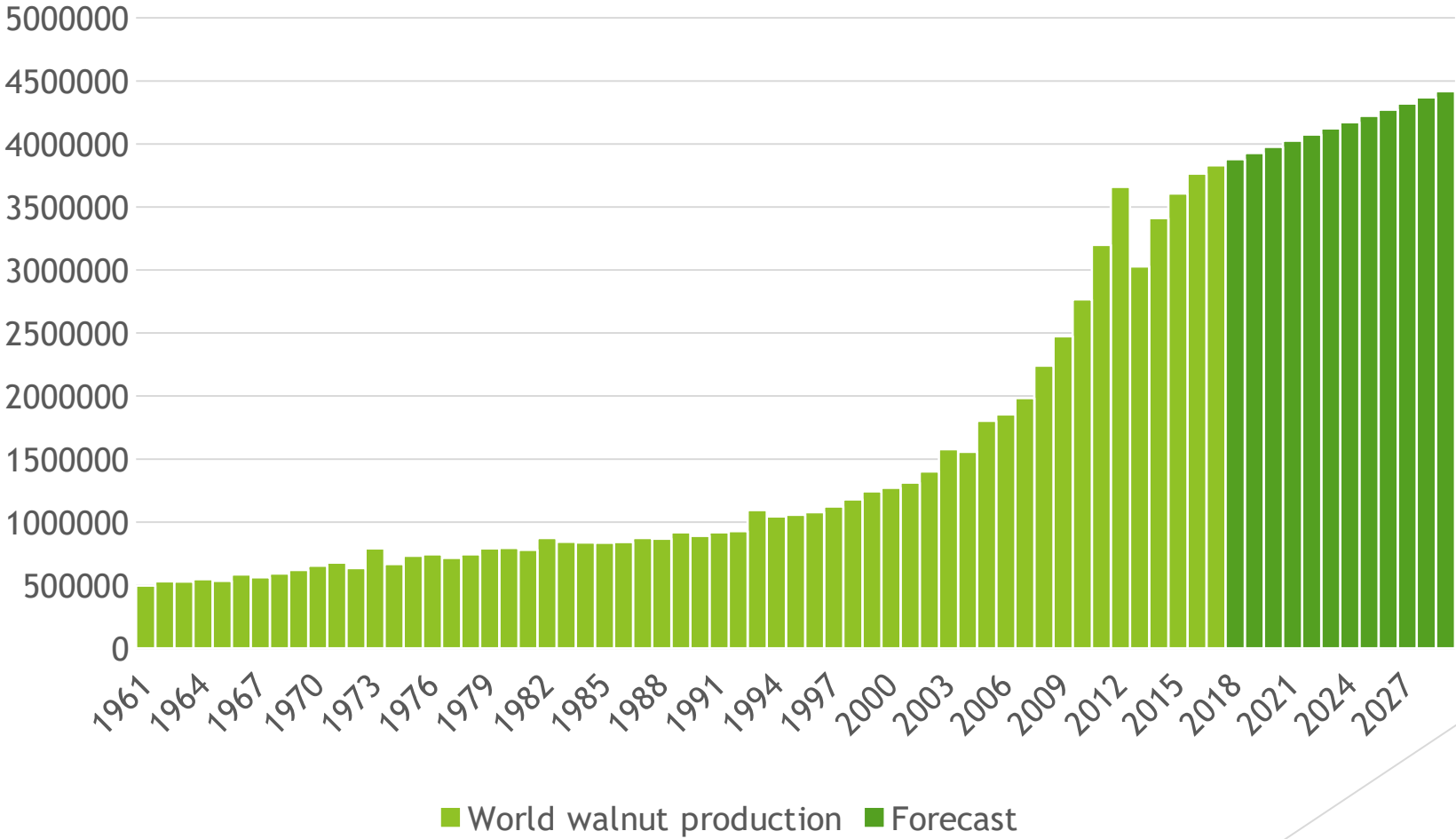
: Perial: approved
1970-01-15: Perial: proposed
2011-01-01: : renewal start

Can Georgia be an important walnut producer in the global market?

Let see some data and facts!

World walnut production 1961-2017

(In-shell basis metric tons)



Source: FAOSTAT 2019

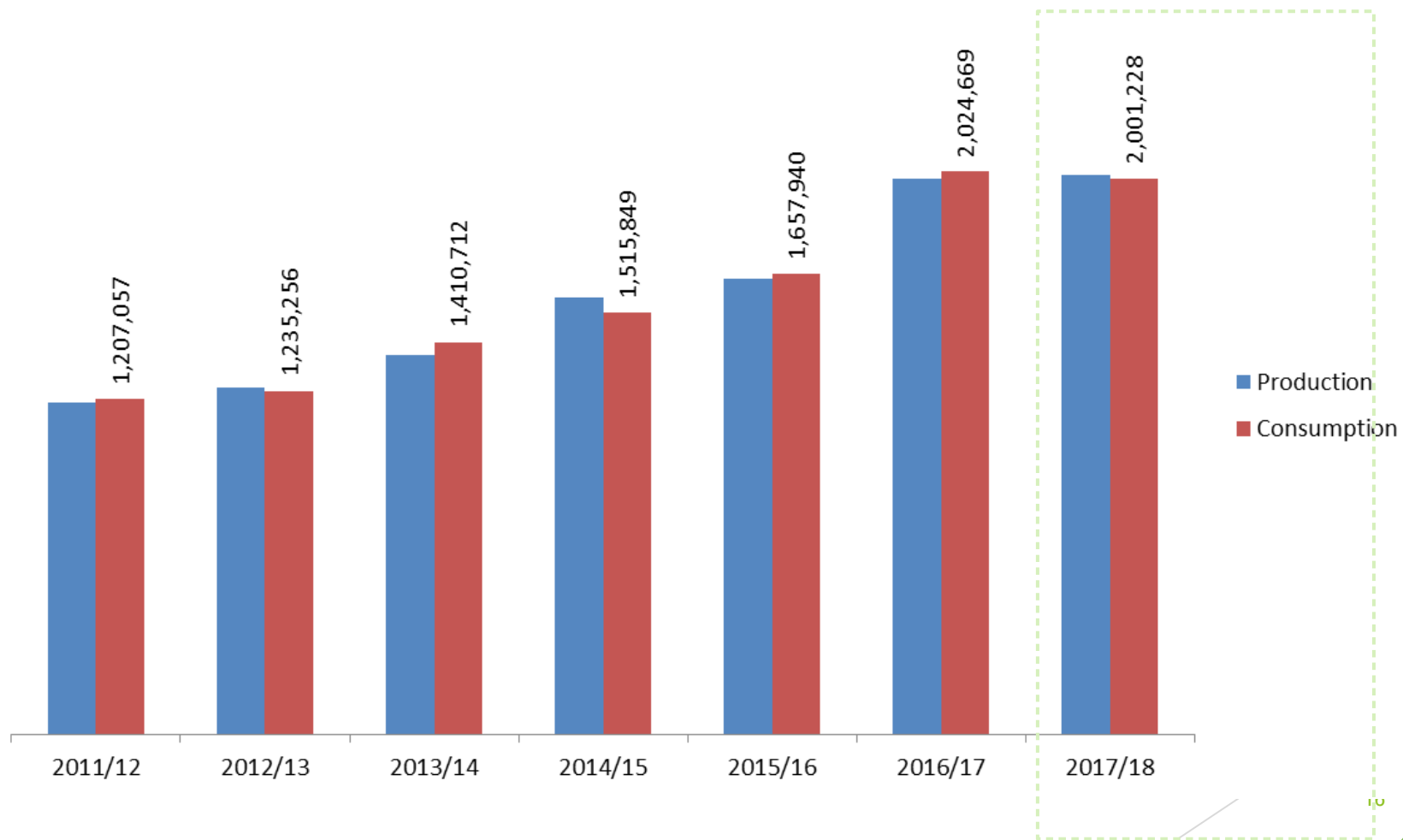
The Walnut production 2010-2017

(In-Shell Metric Tons)

		2010	2011	2012	2013	2014	2015	2016	2017
1	China	1284351	1655508	2021240	1454380	1607394	1713397	1819400	1925403
2	United States of America	457221	418212	497000	446334	518002	549754	625050	571526
3	Iran (Islamic Republic of)	268135	280275	284421	222610	403158	403158	368149	349192
4	Turkey	178142	183240	203212	212140	180807	190000	195000	210000
5	Mexico	76627	96476	110605	106945	125758	122714	141818	147198
6	Ukraine	87400	112600	96900	115800	102740	115080	107990	108660
7	Chile	32229	34978	40058	42585	55832	65232	73724	81163
8	Uzbekistan	14000	33500	30000	40000	44000	52000	53175	48397
9	Romania [183]	34359	35073	30546	31764	31514	33394	34095	43720
10	France [68]	31594	37832	36080	35510	34767	42281	39410	40683
34	Georgia [73]	6100	5700	4800	10800	4200	5600	3600	3300
35	Australia [10]	1900	2493	2500	2500	2544	2600	2620	2650
36	Austria [11]	2653	4250	2740	3416	3438	4939	1369	2633
37	Switzerland [211]	2391	2427	2432	2452	2464	2542	2547	2528
38	North Macedonia [154]	5769	5480	4952	5467	4649	5790	5147	2341
39	Bosnia and Herzegovina [80]	4907	5251	3171	3171	2079	6564	3905	1933
40	Lebanon [121]	1864	1735	1820	1809	1774	1740	1705	1670

World Walnut Consumption

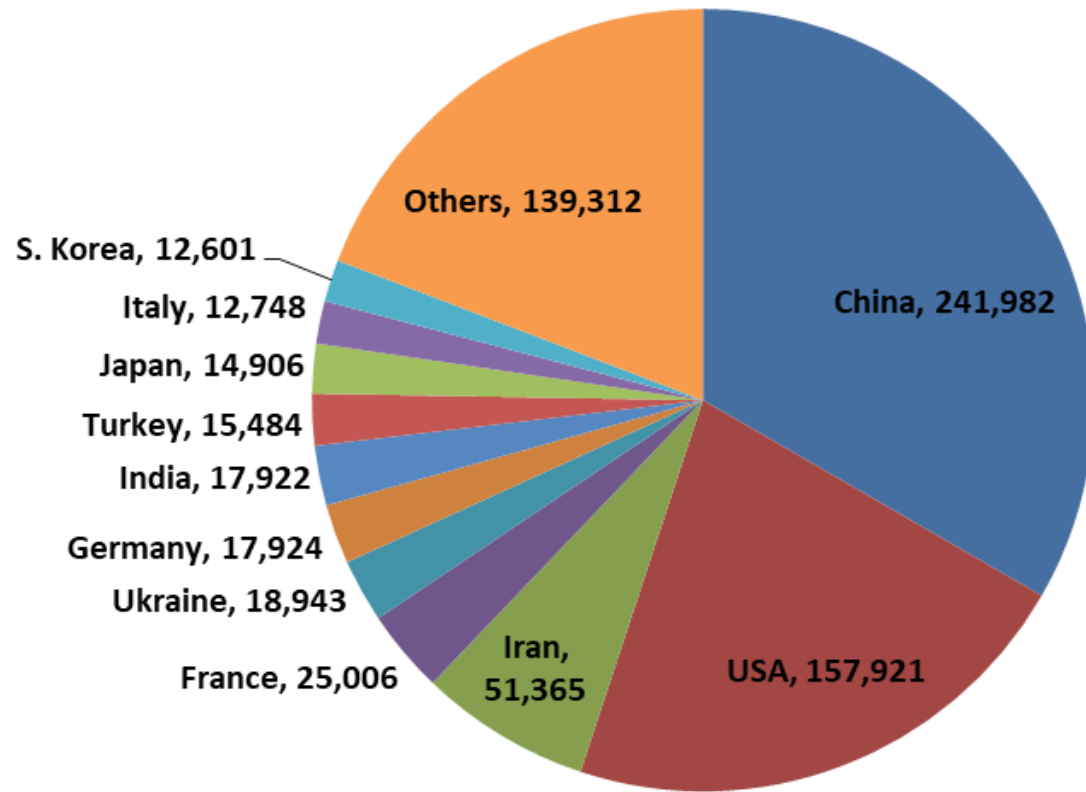
(2011-2018 total metric tons in-shell basis)



Source: INC

Estimated World Walnut Consumption 2017

metric tons per country kernel basis



China	33.33%
USA	21.75%
Iran	7.07%
France	3.44%
Ukraine	2.61%
Germany	2.47%
India	2.47%
Turkey	2.13%
Japan	2.05%
Italy	1.76%
S. Korea	1.74%
Others	19.19%

Economical aspects of establishment of walnut orchards

- The financial cost of investment & subsidies
- The land price
- The consulting price
- The labour cost
- The availability and the cost of irrigation water source
- The cost of planting material
- Fertilizers and phytosanitary status of orchard
- Machinery and horticultural equipment
- The value of the crops

Technical aspects of walnut orchards establishment

- ▶ The soil agrochemical composition
- ▶ The water source for irrigation: 1 kg of walnut biomass (wood, leaf, fruits) is photosynthetised with 400 water liters consumption! The quality of the water for irrigation is the most important thing needed to be resolved before the establishment of the walnut orchard! Without water is it impossible to have good crops.
- ▶ The cost and quality of genetic resources. Who produces or sells the walnut trees? Advice: buy genetic resources /trees only from reliable nurseries from the EU, from Moldavia or from other countries where the varietal genetic authenticity is guaranteed!
- ▶ The accesibility and the price of fertilizers
- ▶ The level of understanding of walnut technologies/know-how
- ▶ Classic density vs super-intensive or hyper-intensive density of trees/hectare
- ▶ Who will be the technical manager or the main consultant of the orchard? 😊

Why is important to know all this things before the walnut establishment?

► Because...

- we dont have time for experiments. We need to be professionals.
- any misunderstandings of the technical aspects has economical consequences (negative, of course)
- the time spended with the understanding of the technical aspects will have positive effects on the final cost of investment in the walnut orchard.
- if there are some problems identified before the begining of the establishment of the walnut ochard it is recomended to solve them first and only after this it is recommended to start planting the orchard, because mistakes in a walnut orchard establishment are equal with years of financial loses.

Where is Georgia situated in the Top of Walnut Producers?

- ▶ You are ranked 34th among the Top producers of walnuts in 2017.
- ▶ The georgian walnut output is equivalent of 0.171392 % of China's walnut production (2017) or...
- ▶ ...with 0.577% of USA's walnut output (2017)
- ▶ ...with 7.548% of Romania's walnut output (2017) or...
- ▶ ...with 8.111% of France's walnut v (2017)

But don't forget the next things!

If we presume the medium yield (walnut in-shell) of 1 hectare of the walnut orchard is 8 tons/hectare...

... look how many square kilometers of walnut orchards have the first 3 walnut grower countries:

- China's walnut orchards surface is only 2406.75 square kilometers
- USA's walnut orchard surface is only 740.4 square kilometers
- Iran's walnut orchard surface is only 436.49 square kilometers

I have a question:

Can we find a minimum 500 square kilometers in the Republic of Georgia with good conditions for planting walnut orchards? I think so!

The paradox of Romania

- ▶ The total surface of romanian walnut orchards is 3000 hectares (30 square kilometers). Less than 1000 hectares (10 square kilometers) planted with lateral bearing walnut varieties.
- ▶ The total number of walnut trees is around 1.800.000
- ▶ In the last 4 years, 1400 hectares of new walnut orchards have been approved trough The National Plan for Rural Development (2014-2020) by national authorities
- ▶ Around 90% of romanian walnut trees aren't placed in orchards. They are isolated trees on gardens or besides of rural and national roads.

... But despite all of this , Romania is the first walnut producer in EU!

The question related to this paradox: is truly impossible for GEORGIA to become in the near future an important walnut grower? No, It is possible!... If you really want it!

Other things to think about...

- ▶ 1 ha of walnut trees nursery = 100 hectares of walnut orchards=800 tons/year of walnut in-shell= 24.24% of 2017 walnut yield of Georgia
- ▶ The lateral bearing walnut varieties yields (in-shell): between 4000 and 8000 kg/hectare.
- ▶ 1 ha of walnut orchard with lateral bearing varieties = minimum 6000 eur/year (profit)
- ▶ The walnut orchard is a lifetime source of healthy omega 3, amino acids and proteins
- ▶ The value of the walnut yield is related to the density of trees/ha, fertilizers, irrigation, climate, and phytosanitary orchard management
- ▶ What can we do together about the establishment of new walnut orchards here in Georgia?

- ▶Key aspects for a competitive industry:
 - ▶ High quality supply (tons per hectare, color, size, kernel yield, etc.)
 - ▶ Research and dissemination of the health benefits of walnuts
 - ▶ Promotion and marketing campaigns to encourage consumption



About technological aspects, about success stories and failure of some orchards from EU, we will talk after lunchtime! Will talk about my Chilean and cChinese technical experiences, too.





Thank you!