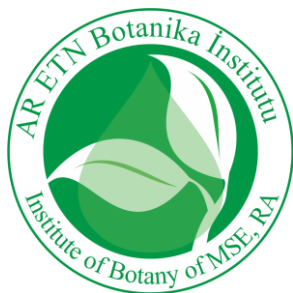


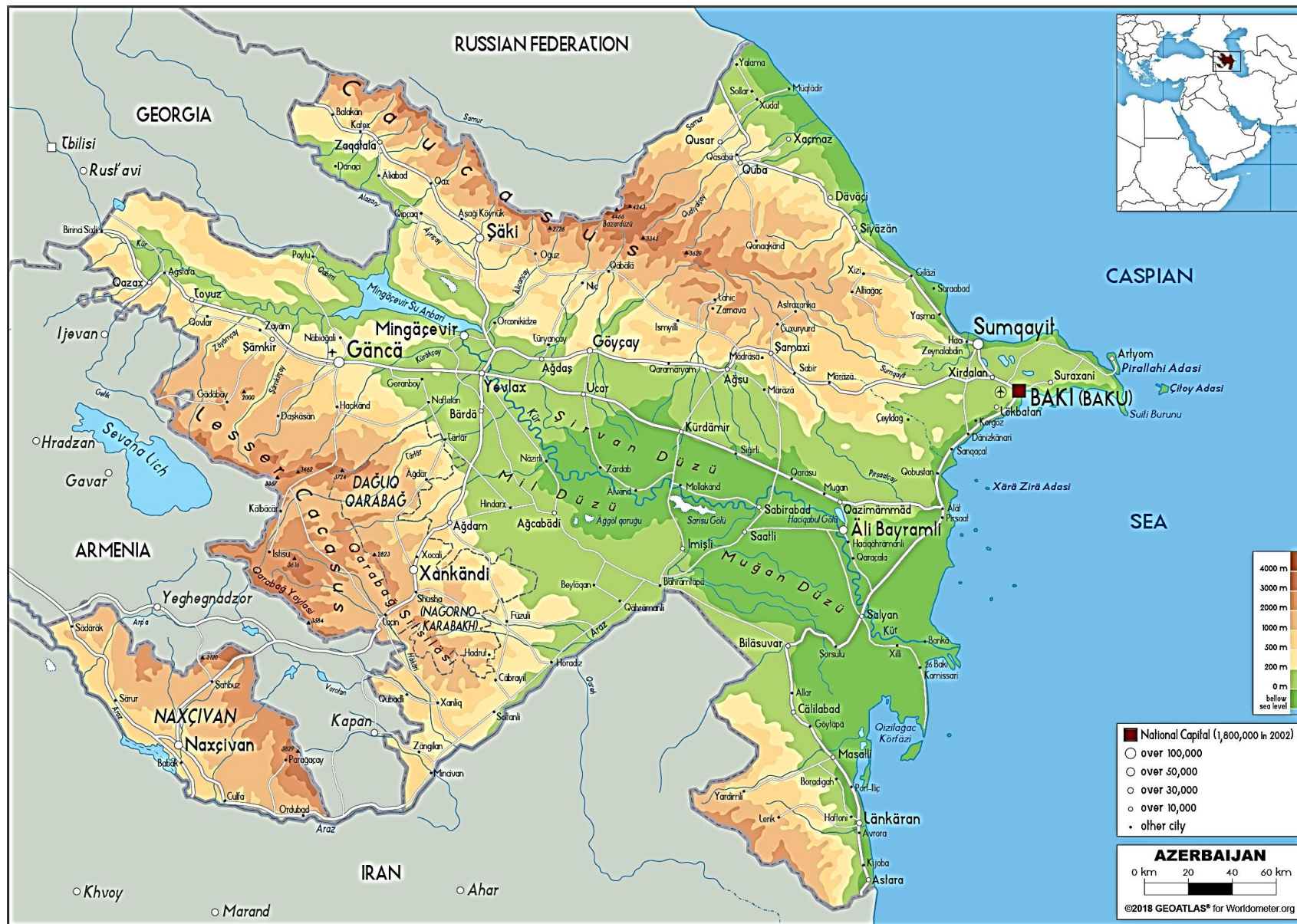
Country status of nut tree resources and health

Nut trees in Azerbaijan: diversity, uses, pests and diseases



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There are an estimated 73,300 species of trees in the world, of which about 9,000 have yet to be discovered.

Gatti et al. 2022, PNAS

The total diversity of trees and shrubs in Azerbaijan includes about 487 species.



Main nut tree species and distribution

- **Walnut:** *Juglans regia* L. (f. *typica* f. *lignose*, f. *lacunosa*, f. *plicata*, f. *macro-lacunisa*); *J. nigra* L. (cultivated)
- **Hazelnut:** *Corylus avellana* L., *C. colurna* L. (= *C. cervorum* V.Prtr.), *C. colchica* Albov (= *C. iberica* Wittm. et Bobrov.)
- **Almond:** *Prunus amygdalus* Batsch. (cultivated), *P. fenzliana* Fritsch, ***P. nairica*** (Fed. & Takht.) Eisenman
- **Chestnut:** ***Castanea sativa*** Mill.
- **Pistachia:** *Pistacia vera* L., ***P. atlantica*** Desf. (= *P. mutica* Fisch. & C.A. Mey.)

Main uses of nut trees



Trade (import/export) of nut products and germplasm



Trees	Production (tons)	Import (tons)	Export (tons)
Walnut	~14,000 tons	5,000-5600 tons	~41,552
Hazelnut	~31,000 (2013)	4,000	~22,000
Pistachia	28	318	-
Almond	1,200	600-800	1,138
Chestnut	500-600	1,309	-

Main insect pests and diseases of nut trees in the country

Walnuts



European Fruit Lecanium
(*Parthenolecanium corni*)



Brown Marmorated Stink Bug
(*Halyomorpha halys*)



Citrus planthopper
(*Metcalfa pruinose*)



Small walnut aphid
(*Cromaphis juglandicola*)

Hazelnut



Nut weevil (*Curculio nucum*)



Almond

Almond fruit moth (*Anarsia lineatella*)

Chestnut



Gall wasp (*Dryocosmus kuriphilus*)

Pistachia



Aphids
(*Slavum lentiscoides*)



Gypsy moth
(*Ocneria dispar*),



Jewel beetles (*Capnodis cariosa*, *Agrilus pistaciophagus*)

Trees	Number of fungi	Fungal associates
Walnut:	27	<i>Aplosporella juglandina</i> , <i>Diplodia gallae</i> , <i>Microdiplodia juglandis</i> , <i>Sphaeropsis druparum</i> , <i>Cladosporium juglandinum</i> , <i>Aureobasidium pullulans</i> , <i>Mycosphaerella maculiformis</i> , <i>Mycosphaerella woronowii</i> , <i>Ascochyta juglandis</i> , <i>Neocucurbitaria cava</i> , <i>Phoma albovestita</i> , <i>Didymella glomerata</i> , <i>Neomicrosphaeropsis juglandis</i> , <i>Neomicrosphaeropsis juglandis</i> , <i>Cylindrosporium uljanishchevii</i> , <i>Marssonina californica</i> , <i>Marssonina manschurica</i> , <i>Cytospora albiceps</i> , <i>Cytospora juglandina</i> , <i>Ophiognomonia leptostyla</i> , <i>Juglanconis juglandina</i> , <i>Juglanconis oblonga</i> , <i>Colletotrichum gloeosporioides</i> , <i>Fusiformiascus pulvinatus</i> , <i>Libertella ulmicola</i> , <i>Sphaeria juglandina</i> , <i>Microstoma juglandis</i>
Hazelnut :	17	<i>Ascochyta coryli</i> , <i>Coryneum foliicola</i> , <i>Cylindrosporium avellanium</i> , <i>Cylindrosporium betulae</i> , <i>Diatrypella verruciformis</i> , <i>Erysiphe corylacearum</i> , <i>Phyllactinia guttata</i> , <i>Monostichella coryli</i> , <i>Gloeosporium perexiguum</i> , <i>Gnomonia gnomon</i> , <i>Anisogramma coryli</i> , <i>Libertella parva</i> , <i>Mamiania coryli</i> , <i>Phyllactinia alnicola</i> , <i>Acanthonitschkea tristis</i> , <i>Neocucurbitaria cava</i> , <i>Peniophora obscuri</i>
Almond:	7	<i>Diplodia amygdali</i> , <i>Diplodia consorsa</i> , <i>Phyllactinia salmonii</i> , <i>Podosphaera pannosa</i> , <i>Diaporthe amygdali</i> , <i>Pestalotia torrendii</i> , <i>Tranzschelia discolor</i>
Chestnut :	13	<i>Botryosphaeria dothidea</i> , <i>Coryneum modonium</i> , <i>Cryphonectria parasitica</i> , <i>Stromatoseptoria castaneicol</i> , <i>Cytospora leucosperma</i> , <i>Diaporthe amygdale</i> , <i>Sirococcus castanea</i> , <i>Trichoderma koningiopsis</i> , <i>Epicoccum nigrum</i> , <i>Coprinellus domesticus</i> , <i>Hyphodermella rosae</i> , <i>Irpex lacteus</i> , <i>Umbelopsis isabellina</i> .
Pistachia :	5	<i>Phyllosticta terebinthi</i> , <i>Pseudocercospora pistachina</i> , <i>Septoria pistachiae</i> , <i>Cytosora terebinthi</i> , <i>Pileolaria terebinthi</i>

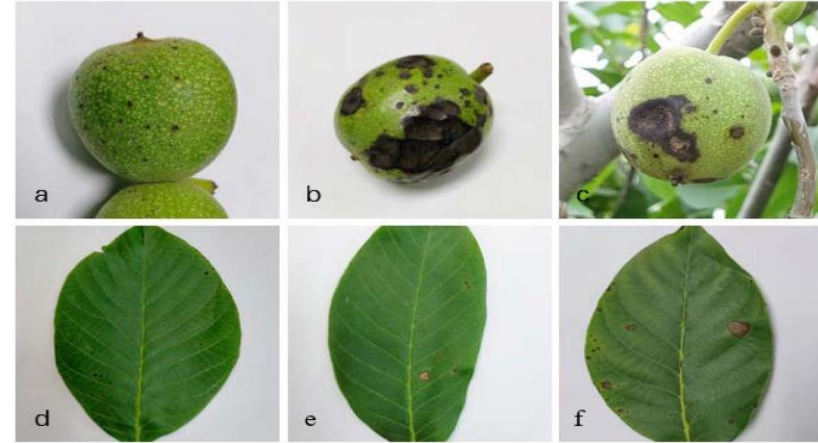
Walnut



Ophiognomonia leptostyla



*Juglanconis
juglandina*
(Hyde et al.,
2020)



Colletotrichum gloeosporoides

Hazelnut



Cyindrosporium avellana
(=*Phyllosticta coryli*)



Erysiphe corylacearum
Phyllactinia guttata

Almond

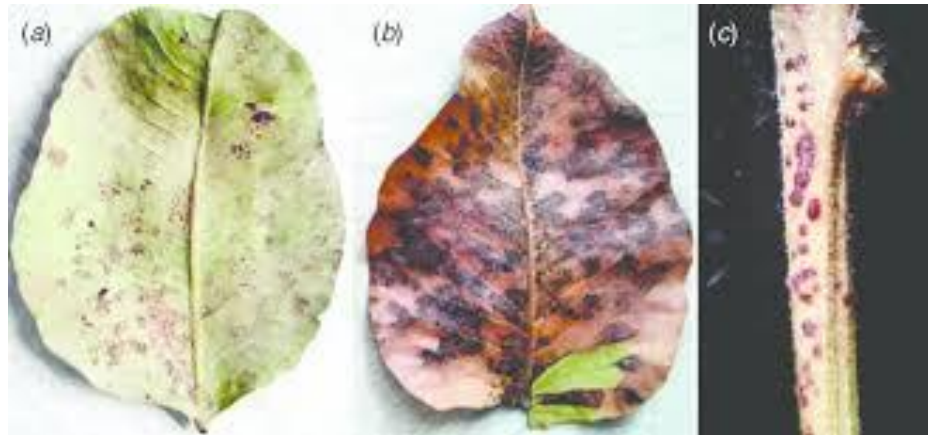


Diaporthe amygdali (*Diplodia amygdali*)



Podasphaera pannosa

Pistachia



Septoria pistachia



Cryphonectria parasitica



Current pest and disease control methods used in the country

Information is limited.

Almonds, pistachios, and chestnuts are primarily cultivated by family owned farms and private agricultural enterprises.

Phytosanitary officials visit cultivation sites upon request from this enterprises and NPPO applies phytosanitary measures according to the IPPC standards.

Needs/challenges in management of pest and diseases

- To establish a unified electronic information system for research institutes, forestry and phytosanitary organizations operating in the country, with the aim of timely identification and discussion of various risk-related issues and measures to control them.
- To improve laboratory conditions and bring them up to modern standards, it is necessary to: modernize equipment, improve infrastructure, and implement technological and safety requirements.
- To train the younger generation at relevant organizations in accordance with best practices, and enhance their technical skills and professional competencies so that they can effectively meet current and future needs.

A light green silhouette of a tree with many branches, located on the left side of the slide.Three walnuts, one green and two brown, located in the top right corner of the slide.

Thank you for your attention!