



NEMZETI ÉLELMISZERLÁNC-BIZTONSÁGI HIVATAL

System of field crops experimentation in Hungary

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Head of Variety Testing Department for Field Crops

Budapest, 28th on April, 2022

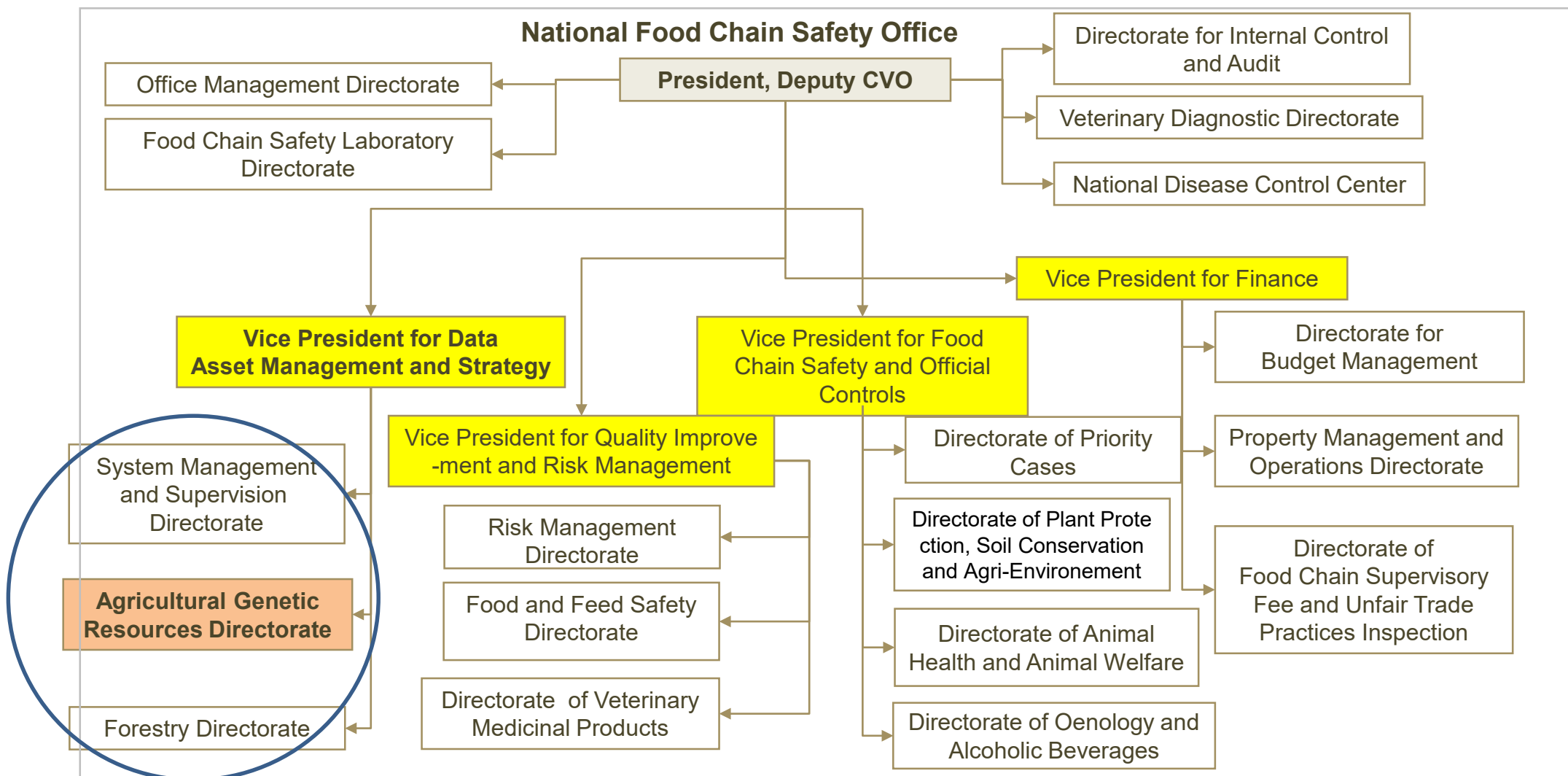
National Food Chain
Safety Office
(NFC SO = NÉBIH)

- It was established 15 March, 2012
- Agricultural Administration Organization
- It carries out its work under the direction of the Ministry of Agriculture
- Structure is divided into functional and professional directorates
- Led by President, Márton Oravecz
- Its operation is defined by the Memorandum of Association and the Organizational and Operational Regulations
- Decree 3/2018 (X.25.) AM defined the structure of the

National Food Chain Safety Office



Organizational structure of NFCSO



Organizational
development
of biological
funds

Variety Testing

Variety testing for
Agricultural crops

Variety testing for
Horticultural crops

**Central DUS Station
Tordas**

Regional testing centre
Szombathely

Regional testing centre
Székkutas

Regional testing centre
Debrecen

Regional testing centre
Eszterágpuszta

Seed Inspection

Department of
Seapreed Certification
and Field Inspection

Department of Crop
Production Informatics

Post Control
Station Monor

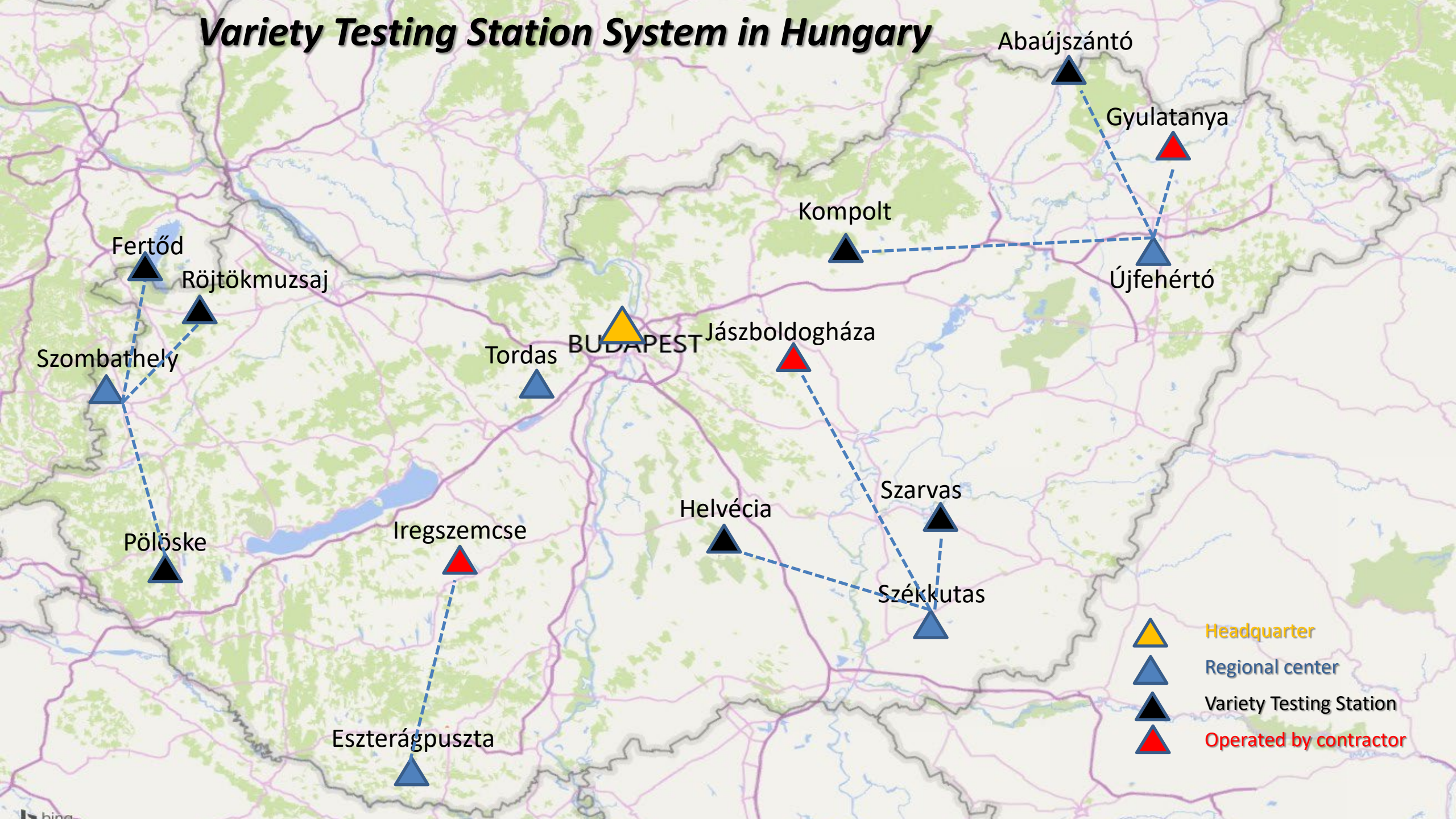
Propagating material supervision

Department of
Certification
Horticultural Plants

Department of
Certification
Forestry plants



Variety Testing Station System in Hungary



Legislation

A new variety driven from notification to recognition is **controlled by national and international laws**, which are in line with the legal practice of EU Member States.

In Hungary registration of plant varieties is regulated by **Act N° LII./2003** on State Registration of Plant Varieties, Multiplication and Marketing of Seed and Propagating Material and **Decree N° 40/2004 (IV.7.) FVM** on State Registration of Varieties enacting the regulations of the above Act.

Trials required for **state registration** and plant breeder right **protection** are performed by the **National Food Chain Safety Office**, according to approved methodology by the Registration Committee.



Tasks of Directorate

- In connection with agricultural and horticultural plant species, **it carries out new plant varieties examinations** required for state recognition and variety protection
- **Provides administration** for the state recognition of plant varieties
- **Provides records related to state recognition** of plant varieties tasks and publish the National Variety List
- It **performs the secretarial tasks** of the Variety Registration Committee and prepares the examination reports
- Performing the tasks of **international cooperation agreements**
 - **Expertise tasks arising** from the obligations of EU Member States
 - Participates in **variety examinations organized** by the Community Plant Variety Office (CPVO)
- **Participation in the work** of international professional committees
UPOV, OECD, ISTA, ESCAA



Protection systems

The basic condition for variety protection is the **fact of novelty**.

The application for a plant variety right can be filed in Hungary:

1. By Member State (Hungarian Intellectual Property Office - Budapest)
2. EU-wide (since 1995: CPVO Community Plant Variety Office - Angers)
 - plant variety protection valid at EU level (27 Member States)
 - it does not have own experimental network → therefore concludes a contract with the competent variety examination authorities of the member states **to carry out the examinations** – such is NFCSO
 - cooperation between the CPVO and NFCSO since 1 May 2004
 - quality assurance since 2010



Field crops accreditations by CPVO

To the CPVO 30% of variety notifications come from field species.
Uniform system within the EU **its maintenance requires accreditation:**
since 2010 our country has gone beyond 4 successful accreditations!


VTDFC is audited for CPVO testing of the following field species

- **Avena sativa L.**
- **Cannabis sativa L.**
- **Glycine max (L.) Merrill**
- **Helianthus annuus L.**
- **Hordeum vulgare L. (*hexasticon*)**
- **Nicotiana tabacum L.**
- **Papaver somniferum L.**
- **Sorghum bicolor (L.) Moench**
- **Sorghum x drummondii**
- **Sorghum sudanense (Piper) Stapf**
- **Triticum aestivum L. emend. Fiori et Paol**
- **Triticum turgidum L. subsp. durum (Desf.) Husn**
- **Triticum spelta L.**
- **Zea mays L.**



Variety tests range of partners

- ☐ Applications by domestic breeders
- ☐ Applications from European Member States (usually have domestic representation but are not obligatory)
- ☐ Applications from third countries (USA, Israel, Australia - EU representation is required)
- ☐ Bilateral collaborations authorities (CZ, PL, SK)
- ☐ Tests performed for CPVO (take-over reports)



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ISO 9001 certified

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656 06 Brno
Czech Republic

www.vuz.cz
ID DS: ugsaiq7

Registration No.: 00020338
VAT ID: CZ00020338

PRELIMINARY REPORT

1. Species (botanical taxon):	Hordeum vulgare L.
2. Breeder's reference / Denomination:	Nord 19/1116
3. Reference number of requesting authority:	512466
4. Reference number of reporting authority:	5106425
5. Testing authority:	ÚKZÚZ, Czech Republic

6. The examination of the variety:

a) has already been completed	[]
b) has been in progress since/for (date/approximate time)	[]
c) will be undertaken as from (approximate date) on the basis of an application or a request already submitted to the reporting authority	[X]
d) will be undertaken as from (approximate date) on the basis of your request	[]

7. The examination report

a) is enclosed, an official invoice will be submitted in due course	-
b) will be forwarded by (approximate date)	December 2023

8. The costs are expected to amount to:

-

9. Special requirements:

-

10. Remarks:

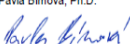
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11. Date:

22. 2. 2022

12. Signature:

Pavla Bimová, Ph.D.



Variety testing
on field

DUS tests:

It is a basic condition for state recognition and variety protection.

CPVO guidelines

UPOV guidelines

National guidelines

based on

Value for Cultivation and Use (VCU):

State recognition is a condition for economically dominant (109) plant species.

NFCISO methodologies

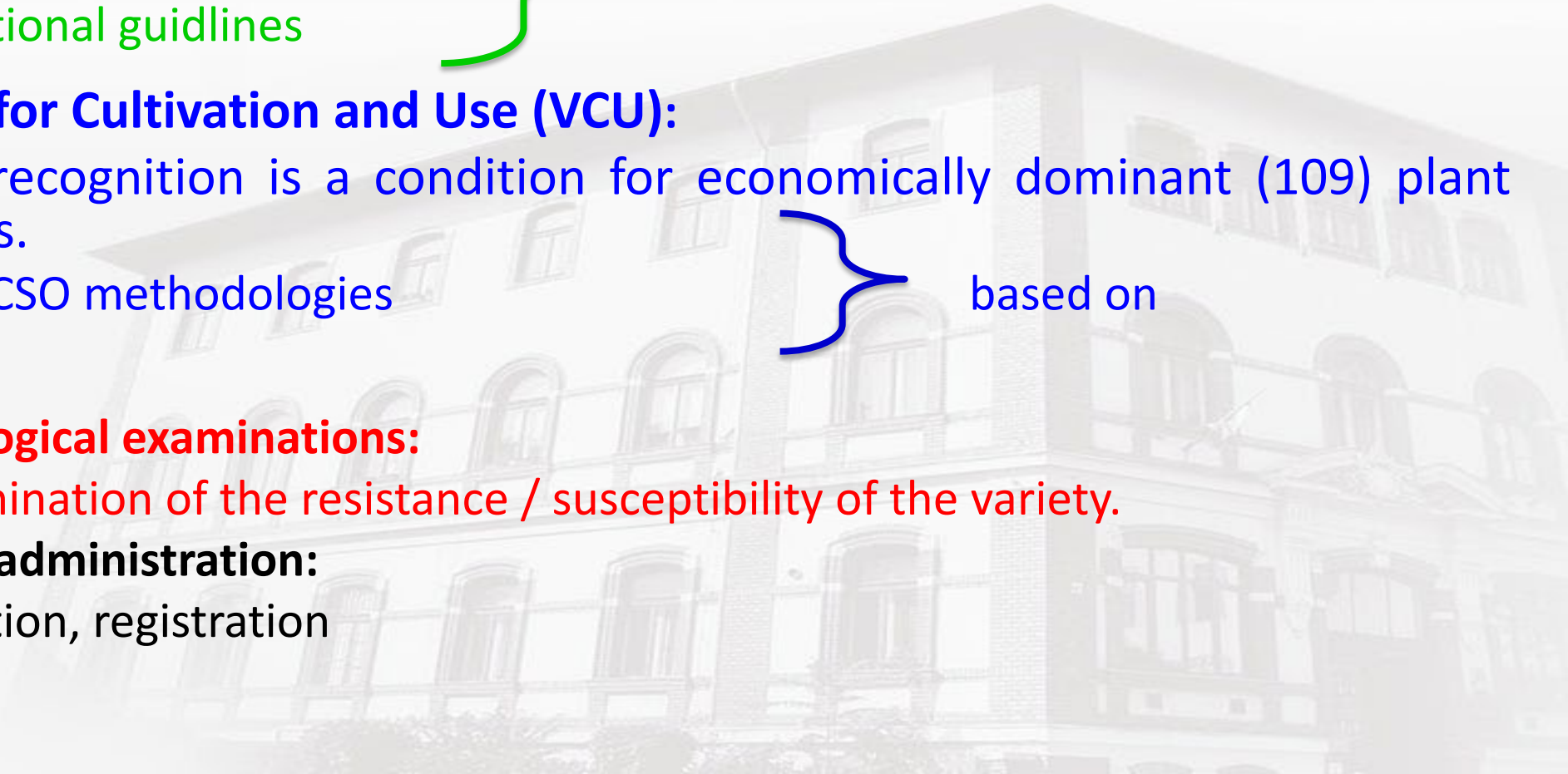
based on

Pathological examinations:

Determination of the resistance / susceptibility of the variety.

IT and administration:

evaluation, registration



Determination of economic value (in case of sunflowers)

Aspects of submitting:

Productivity: the candidate reaches or exceeds the average of the standards achieved during the same period

Oil content: more than 45%

Group of HO hybrids: oleic-acid content higher than 85%

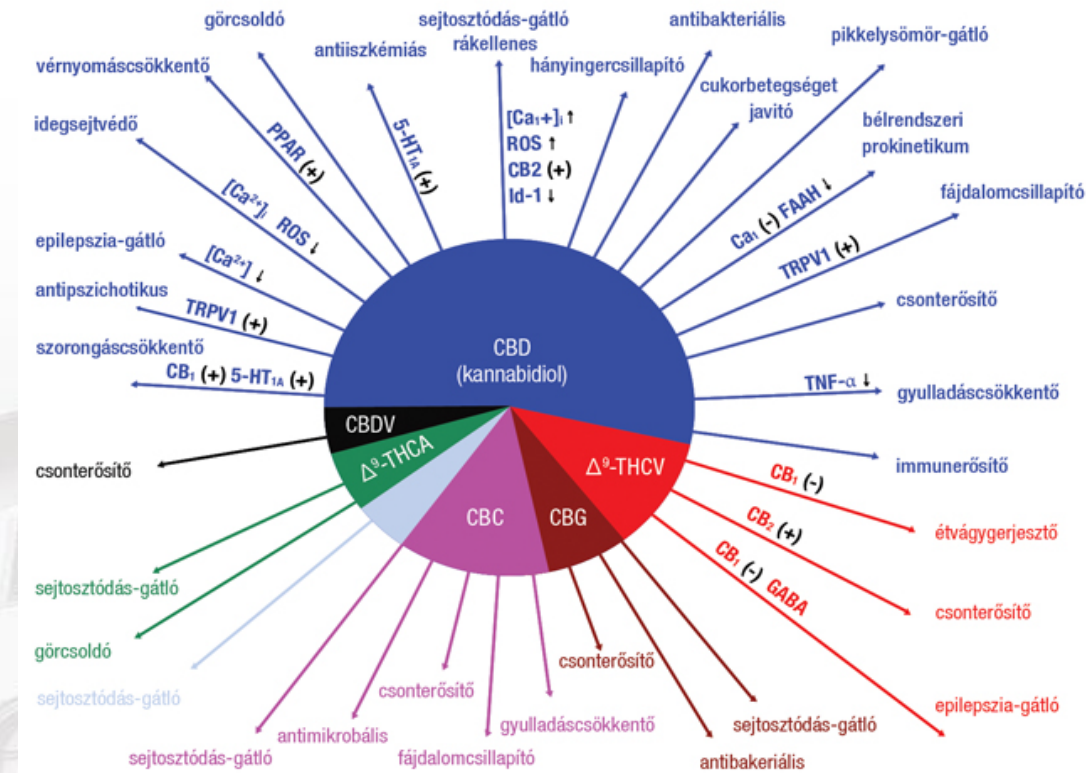
Pathological factors: resistance to domestic plasmopara races (100, 700, 730, 710, 330)

Other economic characteristics: The candidate must not have any adverse characteristics which involve significant risks for cultivation and utilization (eg. stress sensitivity).



New challenges have emerged in hemp cultivation before the plant breeding and variety certification.

In 2013 was registered, the height of the first variety which is **suitable for machine harvesting** (KC Zuzana).



A few years ago, the world was started to excit by the non-psychoactive **cannabinoids (CBD)** demand . Psychoactive and illicit THC content in the plant is positively correlated with CBD content. So exploration of **correlation-breaking varieties** is important (Tiborszállási, Kompolti, Uniko B).

Pathological examinations

Plant pathological observations

Phytopathological evaluation of experiments:

The presence of interspecies infectious pressure is required for the phytopathological evaluation of the experiments.

(it must reach the most susceptible 20% infection)

Pathological classification of varieties :

5 susceptibility categories :

Resistant (1)

Moderately resistant (2)

Intermediately susceptible (3)

More susceptible than average (4)

Very susceptible (5)

may not be very susceptible (5) for one compulsory diseases or
may not be more susceptible than average (4) for two diseases

The final rating is determined by the average of the categories obtained in the examination years.



DUS test system

Definition of DUS test

Distinctness: a variety may be distinguished if it can be clearly and consistently distinguished from any other variety, whose existence is known at the time of filing.

Uniformity: a variety is uniform if the number of different plants does not exceed the prescribed limit.

Stability: in the case of stability, the decision principle, which variety is uniform during the DUS test, it can be considered stabil.

The expression levels of the traits are registered, the summary of which gives the variety description.

DUS testing are on two places

Main: TORDAS (all agricultural crops, except of rice and sugarbeet)

Reserve: SZOMBATHELY (cereals), **SZARVAS** (maize, sunflower, soy, hemp)



DUS test methodology (sunflowers)

Modified varieties

- ✓ Modified **plasmopara resistant** versions
(Five current races: 100, 700, 710, 730, 330, and two races are in the horizon: 704, 714)
- ✓ Modified **herbicide resistant** versions (imidazolinone (IMI), clearfield-plus (CLP), sulphonyl-urea (SU), AIR)
- ✓ Modified **high oil-acid** version (HO)
- ✓ Modified **bloomrape resistant** versions
(Races A-E, expected in the future: F, F + G, H?)
- ✓ **Other** modified version



Relations with the partner authorities

In order to organize the experimental work more efficiently and for cost-saving reasons our office has concluded **cooperation agreements** with the partner authorities of the neighboring countries for the mutual performance of DUS examinations in recent decades => **DUS bilateral agreements between states.**

NÉBIH has such agreement with Polish (**COBORU**) Czech (**UKZÚZ**) and Slovak (**UKSÚP**) partner authorities.

Advantages: only one authority needs to build testing capacity for that species and maintain a reference collection.

Examination Offices strive for specialization, as a result of which each country develops the capacity to examine the species most important to it. One of the most significant, NÉBIH conducts DUS testing of sunflower varieties for UKZÚZ, in exchange UKZÚZ conducts DUS testing of winter oilseed rape varieties for NÉBIH.

In addition, upon request (unilateral order), we **perform DUS tests and sell the experimental results** to foreign partners: Croatia, Serbia, Slovenia, Austria, Romania, Ukraine, Russia, Lithuania, Latvia, Turkey, Iran.

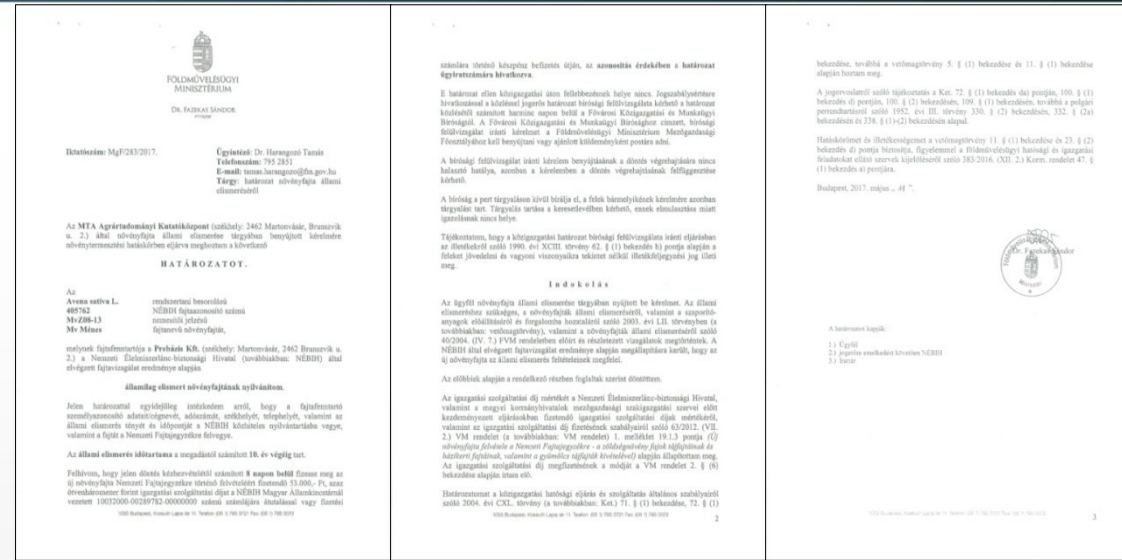


Variety Registration Committee

- ✓ Role: proposes state recognition of the variety, or termination of the examination
- ✓ Field Section: 14 members
- ✓ Two to three meetings a year
- ✓ Members: independent experts
- ✓ Delegating organizations: universities, product councils, food processing organizations, producer representation
 - ✓ Appointment: Minister of Agriculture
 - ✓ Chairman: Director of AGRD (delegated by the President of NFCSO)
 - ✓ Clerk: Head of VTDFC



Terms and conditions of registration



The image shows three pages of a formal application form for variety registration. The first page is the cover sheet with the title 'Közzététel: 2017.05.12.' and the logo of the Ministry of Agriculture. The second page contains the 'HATÁROZATOT' (Decision) section, which is a table with columns for 'Azt, aki...' (Who...) and 'Melyre...' (To...). The third page is the 'Jelölés' (Labeling) section, which contains detailed information about the variety, including its name, parentage, and the applicant's details.



The image shows a decorative letter (OKIRAT) from the Ministry of Agriculture. It is a formal document that confirms the registration of a variety. The letter is signed by the Minister of Agriculture and includes the official seal of the Ministry. The text of the letter is in Hungarian and mentions the variety name 'Mv Ménes' and the applicant 'Martonvásár'.

➤ After the completion of the economic value tests, the **NÉBIH submits the variety** to the competent section of the Variety Registration Committee for state acceptance or for the termination of the tests, if the result of the **DUS tests** was **positive** and the candidate **has an appropriate variety denomination**.

✓ If the candidate variety also met the criteria for a **positive submission** during the economic value tests, a state recognition proposal **will be submitted by NÉBIH**.

➤ On the basis of this information, **the Committee shall make a proposal**.

➤ **The applicant accepts this or may submit a counter opinion**.

➤ **Decision is made based on these three factors:**

Ministry of Agriculture → Decision
NÉBIH → Decorative Letter

Decisions are also received by the competent client in all cases, and an administrative lawsuit can be filed against the decision within 30 days of notification.



National Variety List
and Community
Catalog

❖ Registered varieties in the National Variety List and the EU Common Catalog (CC) that are certified and harmonized on the basis of state recognition may be marketed in the EU for plant production.

❖ Propagating material of varieties officially registered in the EU can be propagated and marketed throughout the EU (27 Member States).



7 cultivation Group in National Lists

PLANT	Number of domestically bred varieties	Number of foreign varieties bred	Total variety number
Agricultural crops	503	806	1309
Vegetables	421	743	1164
Medicinals, essential oil and herbs	22	12	34
Grapes	261	52	313
Fruits	233	229	462
Ornamentals	243	45	288
Forestry plants	20	18	38
Total	1703	1905	3608

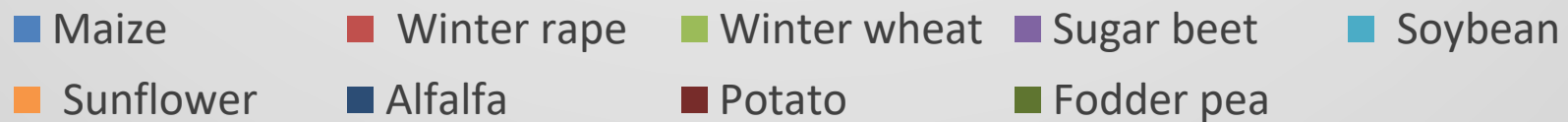
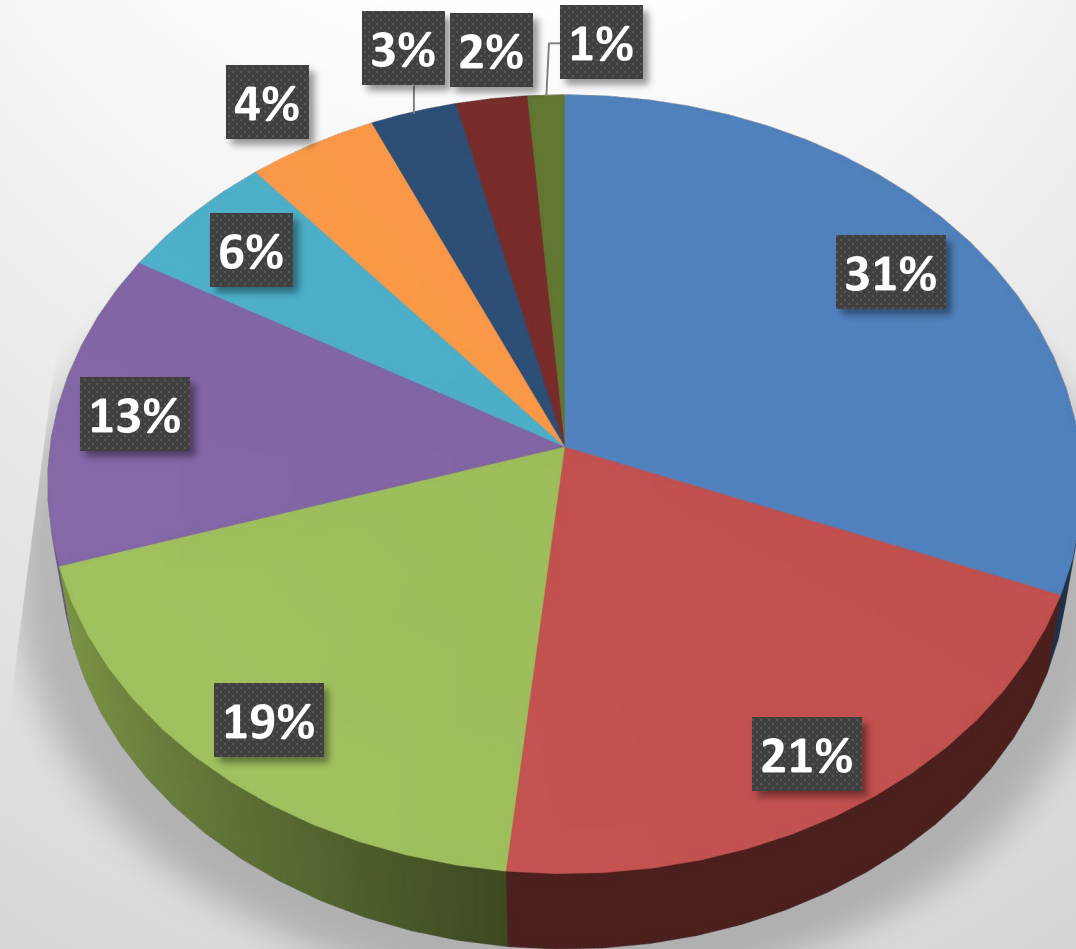


NEMZ

Variety numbers of
field species in the
National Variety List
and the Common
Catalog

Agricultural crops	Domestic	Foreign	Summa	EU (CC)
Sugar beet	0	124	124	1 667
Feed grasses	17	4	21	3083
Alfalfa	25	3	28	424
Fodder pea	8	4	12	387
Other fabaceae and legumes	23	0	23	901
Winter rape	4	190	194	1 314
Sunflower	11	31	42	1616
Soybean	25	27	52	587
Other oil and fibre plants	45	9	54	1 006
Winter wheat	84	90	174	2 477
Maize	66	226	292	5751
Other cereals	137	78	215	3 882
Potato	5	18	23	1 673
Other species (optional non EU)	53	2	55	-
Total:	503	806	1309	24768

Proportion of varieties registered by species



Postregistration trials and varieties exhibitions

Coordinators: Grain Producers' Association and Hungarian Seed Association

Start: maize (2007); winter wheat (2008); rapeseed (2019)

Number of experimental sites: 8-10 sites coordinated by NFCSO

Evaluation: according to NFCSO methodology

Funding organizations: Grain Producers' Association and the breeders



From 2014 a long term cooperation was established between NFCSO and the National Chamber of Agriculture. The among of most economically important field crops (winter rape, winter wheat, sunflower, maize; soybean, sugar beet and sorghum) are held with one presentation per crops all years.

The cooperating parties have use all the means at their disposal **to help the right choice of varieties of farmers!**



**Thank you very much for your
attention!**

<http://portal.nebih.gov.hu/fajtavizsgalat>