WAGENINGEN
UNIVERSITY & RESEARCH

A Hands-On Course

CRISPR-Cas in Plants

The seed business and plant breeding sector is driven by innovation to develop new, resilient plant varieties. Global shifts in regulations combined with advances in our understanding of gene function increase the potential to use CRISPR-Cas as precise and effective tool for targeted plant improvement. Applications range from enhancing climate and pest resilience, to removing undesirable traits such as allergens, and improving yield or quality characteristics like taste and shelf life.

This hands-on course provides in-depth knowledge and practical experience across all key steps needed to design and implement a successful gene editing strategy for your company.

Target group

Professionals working in seed business, plant breeding, biotechnology and related industries, also regulatory agencies and academics are welcomed. The target audience consist of plant breeders, molecular breeders, seed technologist and others with an interest in modern breeding technologies for plants.
A basic level in plant sciences, biology is advised.

Results

With this course you gain in-depth knowledge and hands-on experience on 'what is CRIPSR-Cas' and the steps needed for succesfull plant gene editing as well as cisgenesiss. You learn to assess whether CRISPR-Cas suits your breeding programmes or cisgenesis is the best choice, and understand whether CRISPR-Cas can be performed in-house or if outsourcing is the best choice for you.

Date	27 Jan - 3 Feb 2027
Location	Wageningen Campus
Duration	6 days
Course leader	Martina Juranić & Jan Schaart Wageningen Plant Research

Outline and topics

This unique programme consists of (guest) lectures, hands-on practicals and group work on case studies based on your crop & traits, and the chance to network with industry peers and experts.
With this practical course on genome editing in plants you become familiar with:

- CRISPR-Cas variants and applications.
- Key challenges such as delivery, legal aspects and intellectual property.
- Genome editing using mutation detection assay.
- Tailored gene editing strategy for your plant breedings business.

As part of this course, you will gain practical lab experience creating targeted mutations in plants, from designing and building CRISPR-Cas constructs, to introducing them into plants and finally detecting the resulting mutations.

Programme

A typical course day starts at **08:30h** and ends at **17:30h**. Before the start a detailed schedule becomes available.

Day 1 – Wednesday 27 January 2027

- **Welcome** and **Registration**
- **Setting the Scene**
- **Lectures**: CRISPR-Cas essentials
- **Practical**: Start working with LabBuddy (software) and Cloning guide-RNA expression vector.

Day 2 – Thursday 28 January 2027

- **Lectures**: CRISPR-Cas variants, Intellectual Property Rights (IP), EU regulations
- **Practical**: Sequence verification of guide-RNA.

Day 3 – Friday 29 January 2027

- **Lectures**: Examples of application of CRISPR-Cas
- **Start Case study**: Crop and traits
- **Practical**: Introduction of guide-RNA into Agrobacterium

Day 4 – Monday 1 February 2027

- **Case study**: Identify target sequences and guide RNA selection
- **Practical**: Agroinfiltration of CRISPR-Cas constructs into plants

Day 5 – Tuesday 2 February 2027

- **Lectures**: Delivery methods (regeneration & transformation)
- **Case study**: completing and preparing presentation
- **Networking diner**

Day 6 – Wednesday 3 February 2027

- **Practical**: Mutation detection
- **Case study**: Final presentations
- **Wrap-up** and **Future Outlook**
- **Certification**

Practical information

The course fee is € 3,550.- per person covering on-site tuition, lab practicals, lunches, one networking dinner and the use of WUR's online platform with access to LabBuddy and course materials.

There are no course activities during the weekend.

Between 18 and 25 participants to secure small-scale guidance.

Based on your attendance a certificate is issued at the end of the course.

Registration

Enrollment is possible until the maximum number of participants is reached.
Register via wur.eu/continuing-education.

Register

Wageningen Academy

We develop and organise courses for professionals, based on Wageningen University & Research expertise.

Contact
wur.eu/continuing-education
E continuingeducation@wur.nl
T +31 (0)317 - 48 40 93

wageningenacademy

Today's knowledge, tomorrow's business