We started researching various plants basing on the research experience of barley and hop.

Breeding and improvement of hop and barley varieties

Biotechnology

Development of technology for large-scale plant propagation
Overview of the technology

High-quality, uniform plant production requires the growth of plants with the same characteristics as the parent plant. This is usually achieved via “plant cutting”.

Conventional method: 【plant cutting】

Parent plant → Placed one by one by hand・・・ → Same plant as parent plant
“Our bag-based cultivation technology” is overwhelmingly more efficient than the use of “plant cuttings”
Kirin's unique technology for growing plants inside bags has various distinguishing features.

- Production volume can be freely adjusted by simply changing the number of bags.
- Allows preserving sterility.
- Cheaper than tanks.
- Easy to work with.
- Small and easy to handle.
- Light and safe.
Mass production of carnations established the new business model for Mother's Day in Japan

**Bag-based cultivation**
- Small enough to hold in one hand
- Grow inside sterile bags
- Makes it easy to increase and adjust production by changing the number of bags

**Transplantation in greenhouse**
- Uniform, high-quality growth
- High survival rate

**Just before shipping**
- The flowering period is synchronized, allowing shipping by pallet
High efficiency helped recover seaside protection forests affected by the earthquake

A seaside protection forest that was severely damaged by the Great East Japan Earthquake

Collection of pine cones
Disease-resistant black pine grown with bag-based cultivation technology
Seedlings
Seedlings for forestation

(Partner organizations: Forest Research and Management Organization, others)
Uses of this technology (3)

Also used in Japanese potato production/industry

New species of pests arrive from abroad
The rapid spread of resistant varieties is urgently needed

Providing technology to the Center for Seeds and Seedlings, NARO

Disease-resistant varieties grown in sterile culture
Several hundred potatoes can be harvested from just one container numerous times each year
Very high productivity (red-skin variety)
Future outlook

Use in various fields conducive to the solution of social issues is expected

- Growth of plant seedlings relating to resources and energy
- Seedlings of plants in tropical and subtropical plantations (greater seedling production efficiency, rapid spread of new varieties)
- Fields where innovative cultivation methods are needed (evolution from the plant cutting-based approach)

- Expected to achieve plant growth in a unique environment (space) thanks to virus-free growth, high efficiency and small-lot production, among other features