



Training in organic breeding

Module 15: **Hot Water Treatments for Seed Health**

Unit 15.4: **Hot Water Treatment at BSAG:
Technical indications**

Author: **Dr. Jelena Baćanović-Šišić**
Bingenheimer Saatgut AG



Co-funded by
the European Union

Funded by the European Union, the Swiss State Secretariat for Education, Research and Innovation (SERI) and UK Research and Innovation (UKRI).



UK Research
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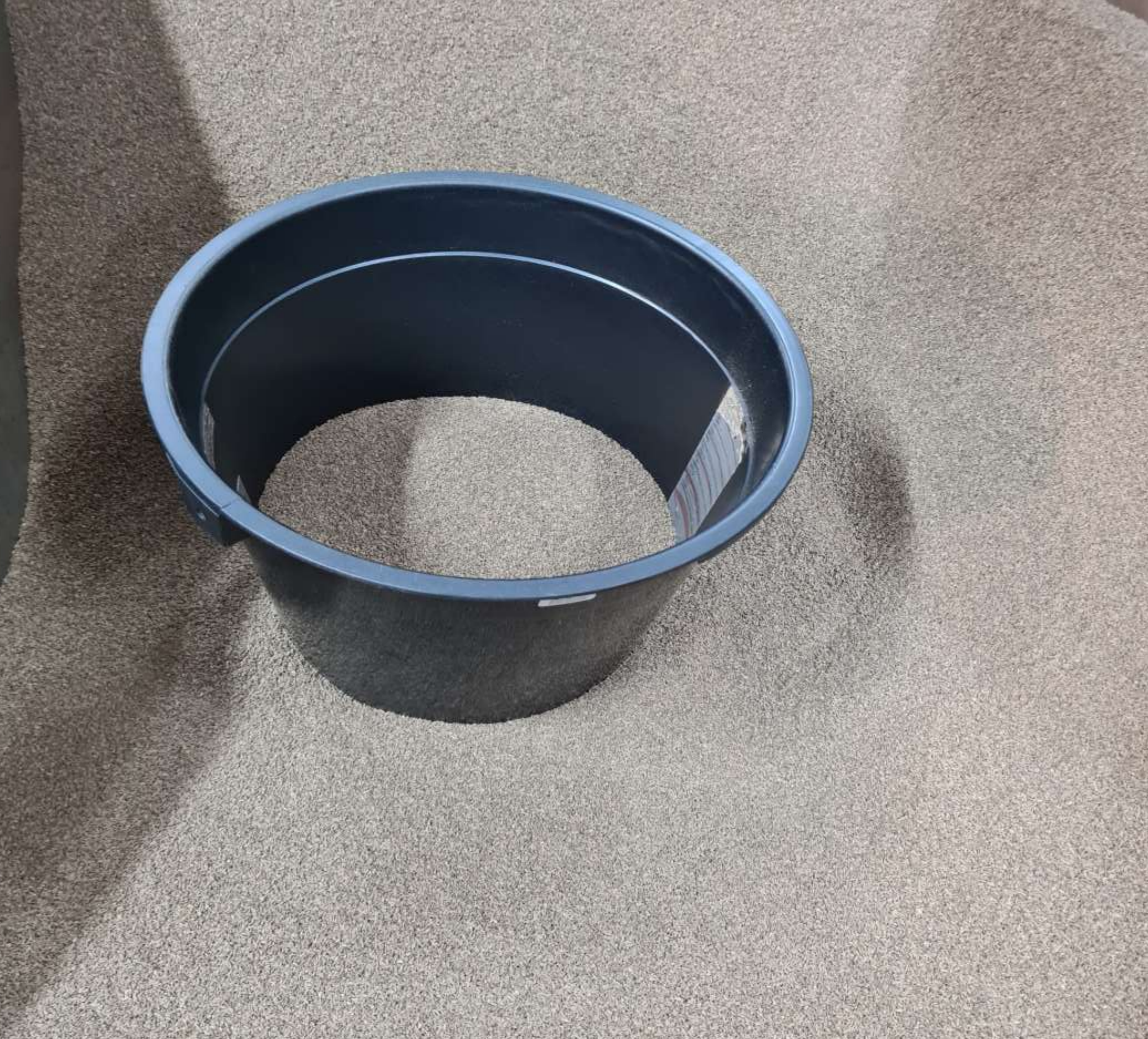
A photograph of an industrial facility, likely a wastewater treatment plant. In the foreground, there are large, cylindrical stainless steel tanks. One tank in the center has the brand name 'A-STAR' and 'TANK' visible on its side. To the left, there is a wooden structure and a large white bag. In the background, more tanks and industrial equipment are visible, including a control panel with various buttons and switches on the right wall. A window is visible in the upper left corner. The text 'HWT' is overlaid in the center of the image.

HWT



Equipment and Material List

- 500 liter water tank with automatic control and hot water heating
- 500 liter cold water tank
- Cargo lift with grid basket
- Centrifuge
- Circulation pump
- Treatment bag made of nylon fabric
- Scales
- Wire and wire drill unit
- Bag labels with wire
- Waterproof Sharpie (edding)
- Laboratory alarm clock-
- Drying racks, clean, free of foreign seeds, not defective, if necessary, paper sheets to place underneath
- Dehumidifier
- Drying boxes with blower, clean and free of foreign seeds, with fleece inlay if necessary
- Seed humidity meter
- New bags
- New paper bags for reserve samples
- New labels for sacks and paper bags



Max 6L in bags





Max 15 bags/treatment

Maximal weight of one bag

	Carrot	Pumpkin	Beetroot	Lamb lettuce	Parsley	Cabbage	Beans
Maximal weight [kg]	2,5	3,2	2,2	1,75	3,0	1,5	5,0
Maximal allowed humidity for storage [%]	9,0	8,0	12,0	8,5	8,0	7,0	< 14,0





Closing bags





Preheating at 32°C



Main treatment



Cooling in cold water
Max 5 minutes





Centrifuge



2000
Liter mit 500 L



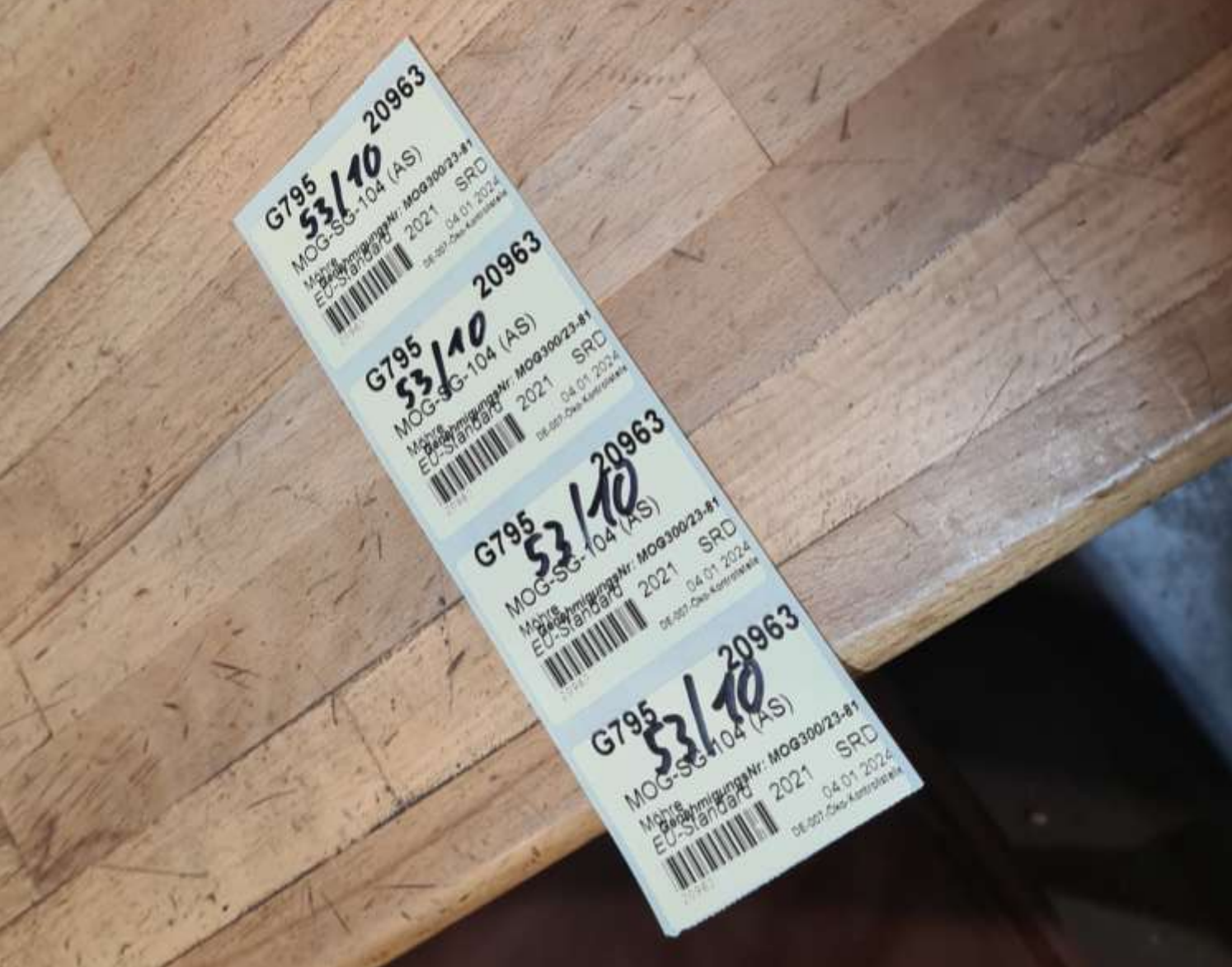
Active Drying

Passive Drying

Dehumidifier

Drying





Labeling



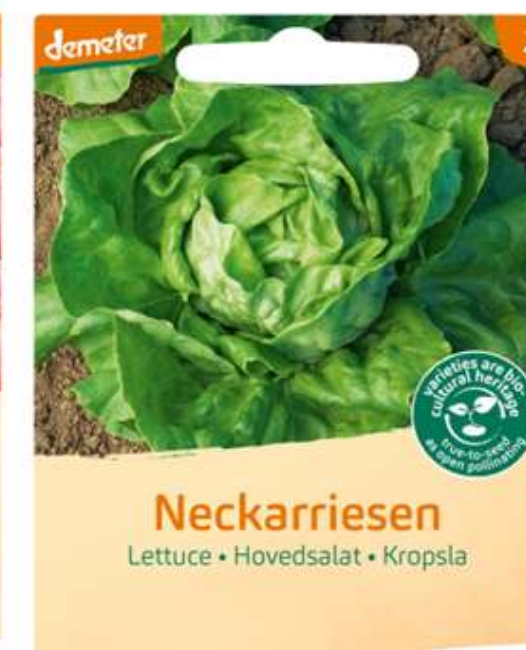
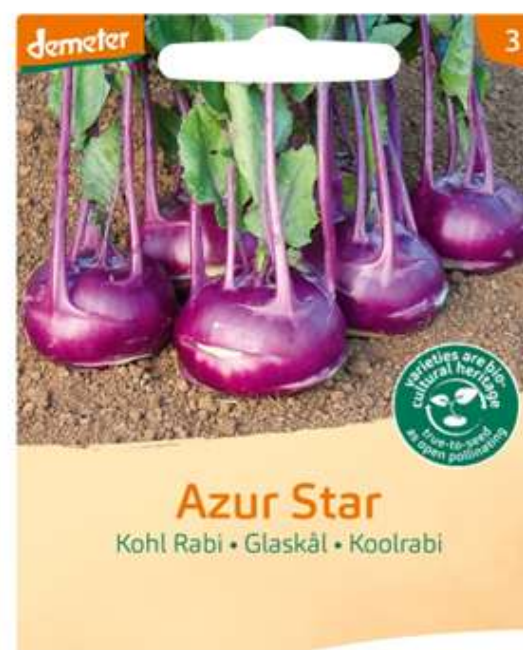


Filling in bags



Storage





To summarize:

- Hot water treatment requires **specialized equipment**: heated and cooled water tanks, circulation pump, centrifuge, drying racks/boxes, humidity meters, and labeling systems
- **Treatment steps** include: bag preparation and closing, preheating at 32 °C, main treatment, cooling for max. 5 minutes, centrifugation, active or passive drying, labeling, and storage
- **Strict limits** are applied for treatment quality: max. 6 liters per bag and max. 15 bags per treatment
- **Correct execution of each step** is essential to balance pathogen elimination with seed viability
- **Documentation and labeling** ensure full traceability of each treated seed lot

