blün

Aquaponics - Food production in a closed-loop system

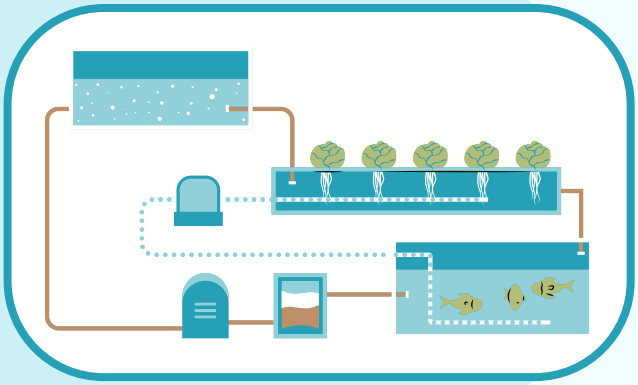
blün is a Vienna-based food producer that cultivates fish and vegetables in an integrated aquaponics system operating in a closed loop. The company combines aquaculture and plant production at an urban location and uses closed systems to efficiently utilize water and nutrients.

Relevant Resources in the Loop

- **FISH FEED** - as input for the production of fish and nutrients
- **FISH WATER** - as a central nutrient source for plant production
- **BIOFILTERS** and **MICROORGANISMS** - for converting nutrients into forms available to plants
- **VEGETABLE PRODUCTION** - as output and part of the water purification process
  - Closed water and nutrient cycle without external fertilizers

Methods & Approaches of Circular Economy

blün uses an aquaponics system that combines fish farming and plant production in a closed loop. Nutrient-rich fish water is biologically treated through microorganisms in a biofilter and used as a fertilizer for the plants, while the plants purify the water and return it to the system. This integrated process enables efficient food production without additional fertilizers or wastewater. Production takes place in a controlled environment, allowing resources to be used efficiently while minimizing environmental impacts.



Impact & Added Value

blün demonstrates how urban food production can be designed in a resource-efficient way through closed water and nutrient cycles. By combining fish farming and vegetable cultivation, an integrated system is created that directly reuses side streams and minimizes external inputs. At the same time, the model strengthens regional food supply, reduces transport distances and provides a scalable example of innovative circular bioeconomy approaches in urban environments with potential for transfer to rural areas.

Ecological Benefits

- Closed water & nutrient cycle without wastewater
- No use of external fertilizers through nutrient recycling
- Very low water consumption through recirculation
- Resource-efficient production on a small footprint
- Reduced emissions through local food production

Social Benefits

- Strengthening regional & transparent food supply
- Raising awareness for sustainable food production
- Knowledge transfer on aquaponics & circular economy
- Contribution to resilient urban food systems
- Promotion of sustainable consumption practices

Economic Benefits

- Efficient dual use of resources for fish & plants
- Reduced operating costs through water & nutrient cycles
- Regional value creation through local production
- Independence from external fertilizers
- Scalable business model in the circular bioeconomy