Skjetlein videregående skole

SKJETLEIN VIDEREGÅENDE SKOLE
SØR-TRØNDELAG FYLKESKOMMUNE

Stefan.Preisig@stfk.no

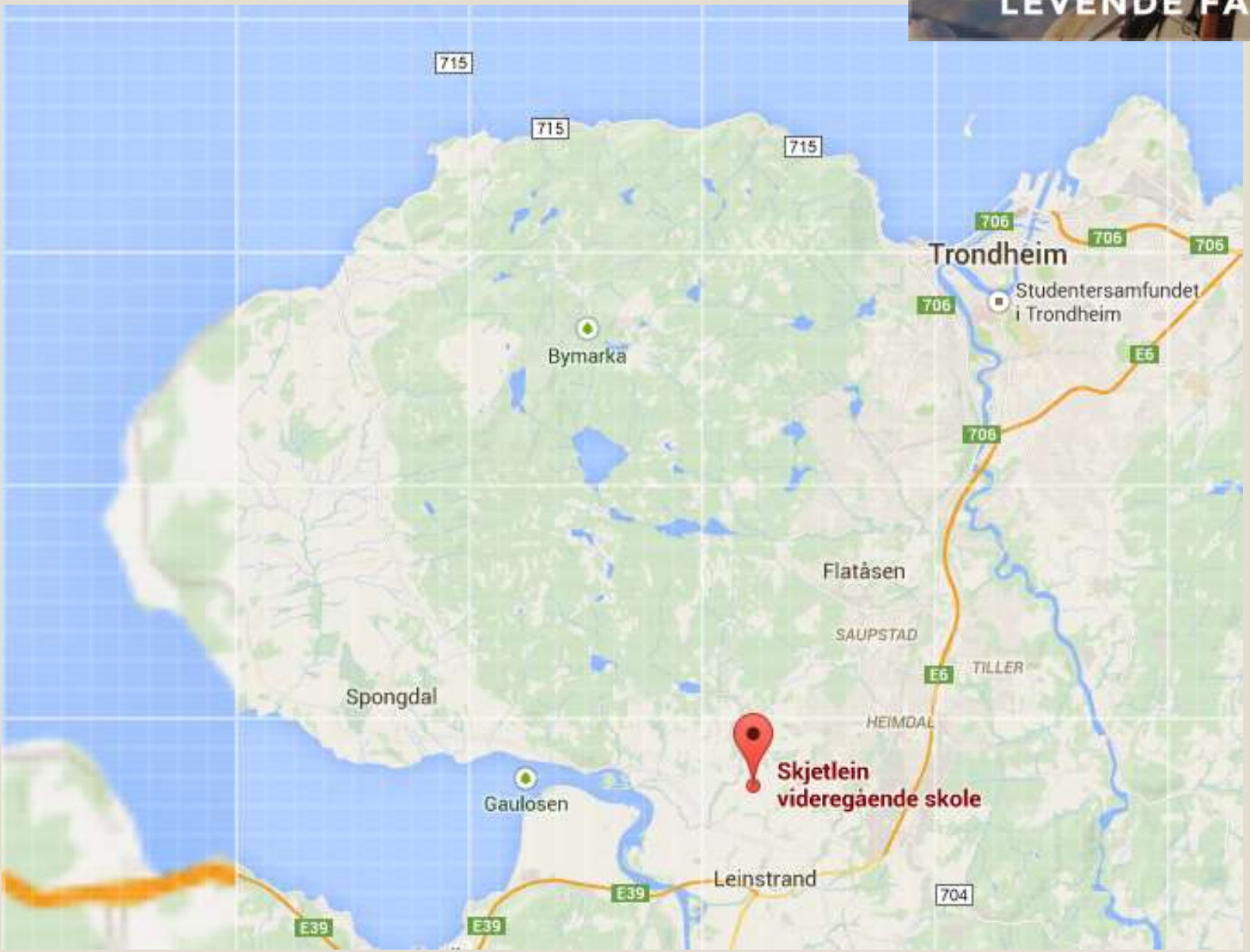
Food systems for a sustainable future:

Interlinkages between biodiversity and agriculture

Stefan Preisig - Skjetlein videregående skole

Frøset gård - Wednesday june 1st 2016

Trondheim Conferences on Biodiversity


715
715
715
706
706
706
706
Trondheim
Studentersamfundet i Trondheim
Bymarka
E6
706
Flatåsen
SAUPSTAD
TILLER
E6
Spongdal
HEIMDAL
Skjetlein videregående skole
Gaulosen
Leinstrand
E39
704
E39
E39

History 1900

Founded 1900
Agricultural school

Class in 1951

Canteen in 1950

SKJETLEIN VGS levendefag.no

Facilities at Skjetlein:

Stable for cows, pigs, sheep, chicken (egg production)
Construction / repair hall
Forest
Production area (farming)
Hall for landscape practice
Stable for horses
Riding hall

Skjetlein vgs – mission statement 2016

Bærekraftig – ekte – naturlig LEVENDE FAG

«Sustainable» – «real» – «natural» LIVING SUBJECTS

School 2015

330 students (300 2014-2015)
Staff: ca. 80 (60 ped. staff)

Main program: agriculture (140 students)

Other programs: construction (2 years) and landscape design (one year (2nd year)) (45 students)

University prep year (3rd year) – 120 students

Alternative education – ca. 20 students

Farm «Skjetlein gård»

90 hectare arable land

Organic (total area, minus a small trial area)

- Weeds, pees, gras
- Milk and meat (cow, sheep)

Conventional: meat (pig), chicken 3000 (egg production)

100 hectare forest

School farm main goal: learning environment for the students

Skjetlein grønt kompetansesenter SGK
(independent)

Competence at Skjetlein / consultants

TINE*	milk production
NLR*	plants / food / renewable energy)
Legal	counseling services (lawyer)
Debio	organic food certification (national)

* Membership services

Food systems for a sustainable future @ Skjetlein

Focus/demands

Education - national (school administration / laws):

- learning now, working tomorrow (be ready/prepared)
- Sustainable
- Cooperation school / universities / companies

Food systems for a sustainable future @ Skjetlein

Focus/demands

Agriculture (local and national)

- Sustainable
- Science / research focus
- Renewable energy production
- Local food production / specialized products
- More local/national food (self-sufficiency)
- Environmental friendly

Food systems for a sustainable future @ Skjetlein

Challenges

Need more students in order to satisfy the demands from agricultural sector:

Research (especially plants)
Counseling
..and also teacher!

Cooperation with companies (cultural differences, different motivations/goals)

Schools do normally not have funding for (research) development – projects (well trained staff (education) will help to be an attractive partner for projects)

Food systems for a sustainable future @ Skjetlein

The school has in the last five year invested time and manpower in:

- Updated curriculum / learning processes (pedagocical)

- Cooperation / projects with focus on sustainable energy / food (sustainable backpack)

  The Sustainable backpack, is a national priory initiated by the Ministry of Education and Research and the Ministry of Climate and Environment to support Norwegian schools to implement Education for Sustainable Development (ESD).

- Local cooperation (universities/companies)
- Staff training (university studies)
- Hiring new staff members
- Students work training outside of the school (in agricultural companies)

Projects
Skjetlein prepares students for the future

Important cooperation: School – business – research

lektor2 Gjestelærere fra arbeidslivet i realfag

NATURFAGSENTERET
NASJONALT SENTER FOR NATURFAG I OPPLÆRINGEN

natursekken.no

Compost bioreactor

Horse manure can be re-used

- Skjetlein Grønt Kompetansesenter (SGK),
- Skjetlein videregående skole (SVGS)
- Global Green Energy (GGE)
- Nibio (former Bioforsk Økologisk)
- Norsk Landbruksrådgivning Sør-Trøndelag (NLR)

Compost bioreactor

Motivation

- Decrease in use of peat in growing activities (CO_2 bunker)
- Horse manure (disposal) – problem for farms
- Disposal of other biologic rests (ex. potato)
- Energy transfer from the reactor (i.e. move the final product in the greenhouse)

Compost bioreactor

Mission students

- Fill the reactor (log weight, type)
- Measure gas emission (log)
- Energy use (log)
- Temperature (log)
- Evaluation of the result (compost)

Compost bioreactor

Additional value for the students

- Students experience why it is important to recylcle,
  example phosphor (access/availability)
- Some students did meet the research group (science class students)
- Scientific working methods,
  be part of a research project
- Longer and more complex projects
  → increased learning effect

Compost bioreactor

Findings

The organic mixed compost is not a good match for seedlings / sawing . Does not store much water

Adjustments

Change of recipe from year one to year two
More food / green rests mixed to the horse manure

Compost bioreactor

Possible solution: store the organic manure ½ year, increased break down of material – added tomato green material does sprout anymore

Produce – free for pest organism and weeds → important, temperature in the reactor has to reach 50 degree Centigrade.

Continuation?

Contact with IKEA, they want to buy the compost, and deliver food rests

Challenges: factory like working environment, school is school

Compost bioreactor

Students (and teacher)
use/test the local organic compost material

Alternative education / local food production

Motivation

- All county schools certified «Miljøfyrtårn», increase percentage of organic food in the schools canteen
- Offer training in small scala production
- Entrepreneurship (sell products)
- Processing products further (i.e. apple jus, jam, oil with spices, oil from nuts..etc.)

Goal: to train students (work training) for future jobs, increased work experience

Less (academic) school work, more real life farming/work experiences

Alternative education / local food production

Adaption

500k Nok to remodel the greenhouse

Processing room / facilities

Important

New green house facilities also used by our «regular» students
New cooperation with research groups from NTNU (aquaponic)

Alternative education / local food production

Alternative education / local food production

Urban farming

Duties:

Production of seedlings for local «urban farming» groups
(leek 15000, cabbage 15000, salad 2000, red beets)

Goal:

Possible income for students without farming connection (future job)
Small scale production, self sustainability increased focus in cities
Experimenting with other vegetables (corn, pumpkin, squash)
Entrepreneurship, business development (i.e. sell the products)
«Sell knowledge»

Urban farming

Also linked to «alternative education»

Potential

- there is a demand for seedlings, can produce and sell more
- Sell knowledge (new) – entrepreneurship

Challenges

Manpower (outside school hours), competence (staff)