

# Supplementary Materials: Survey of Aquaponics in Europe

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## EUROPEAN AQUAPONICS SURVEY

Dear Sir/Madame,

With this survey we seek information to describe the current status of aquaponics, to identify research priorities, and viability, as part of the European Cost project entitled COST FA1305 "The aquaponics hub: Realizing sustainable integrated fish and vegetable production for the EU".

This survey is intended for people 18 years of age and over who have or are using aquaponic systems, producing fish, mollusks or crustaceans in recirculation systems in combination with growing plants in hydroponics. All responses are confidential and we will not use personal or professional data in any way. If you wish to receive information related to the survey you can include email contact information at the end.

It should take 5–10 min to complete the 25 questions. We greatly appreciate your cooperation.

Best regards,

Work group 1, EU COST FA 1305

### DEMOGRAPHICS (6 questions)

#### 1. What is your primary interest in aquaponics? (Love et al. question 50)

- a) Education and training
- b) Commercial production
- c) Research
- d) Urban farming
- e) Produce own food

#### 2. Which of the following categories best describes your organization? (Love et al. question 10)

- a) Primary and Secondary School.
- b) 2-year or 4-year College or University or Graduate School.
- c) Vocational or Trade School or Technical Training Center.
- d) Commercial Producer, Vendor, or Consultant.
- e) Non-Profit Organization. (e.g., after school program, faith-based organization, international aid organization, workforce training organization).
- f) Other. \_\_\_\_\_

#### 3. In the past 12 months you have: (Combined, Love et al. questions 5, 7, 8 and 9)

- a) sold aquaponics raised fish or crops
- b) sold aquaponics-related materials, services or information (e.g., consulting)
- c) trained people about aquaponics (e.g., classes, workshops)
- d) started an aquaponics system

#### 4. What is your gender? (Love et al. question 42)

- a) Male.
- b) Female.
- c) Do not wish to specify.

#### 5. When were you born? (Love et al. question 44)

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**6. What is your highest level of education? (Love et al. question 43)**

- a) Less than High School
- b) High School
- c) Undergraduate degree
- d) Masters degree
- e) Doctorate degree

**FACILITIES**

**7. What year did you start your FIRST aquaponics system? (Love et al. question 11)**  
Year.

**8. Who designed your aquaponics system? (Love et al. question 13)**

- a) Self-designed.
- b) Purchased as a kit.
- c) Designed by consultants.

**9. Please estimate the size of your aquaponics system. (Love et al. question 14)**

- a) Water volume in the aquaponics system (in litres).
- b) Footprint of facility (in square meters).
- c) Surface area of fish unit
- d) Surface area of plant production unit

**10. What kind of filter do you use? (new)**

- a) Aquarium filter
- b) Biological filter.
- c) Biological solids separator filter.
- d) Biological solids separator filter + UV.
- e) Media filled boxes act as filter
- f) Other

**11. Where is your aquaponics system housed? Check all that apply (Love et al. question 12)**

- a) Inside a building.
- b) Inside a greenhouse or high tunnel.
- c) On a rooftop or terrace
- d) Outdoors (detached from building)
- e) Inside your home

**12. Where is your aquaponics system located? (Love et al. question 39)**

- a) City.
- b) State, Province, or District
- c) Country

**FISH AND CROPS**

**13. What types of fish were raised at your aquaponics facility in the previous 12 months? Check all that apply. (Love et al. question 19)**

- a) Tilapia.
- b) Catfish.
- c) Bluegill.
- d) Perch.
- e) Ornamental fish. (Koi, Goldfish, Tropical fish).
- f) Bass.

- g) Trout.
- h) Other. \_\_\_\_\_

**14. Please estimate your aquaponics fish harvest in the previous 12 months at your facility.**

**(Love et al. question 20)**

- a) 1–49 kg
- b) 50–99 kg
- c) 100–499 kg
- d) 500–999 kg
- e) 1,000–4,999 kg
- f) 5,000–9,999 kg
- g) 10,000 kg or more

**15. What types of crops were raised at your aquaponics facility in the previous 12 months? Check all that apply. (Love et al. question 21)**

- a) Beans and Peas.
- b) Cucumbers.
- c) Melons.
- d) Okra.
- e) Peppers.
- f) Squash.
- g) Strawberries.
- h) Tomatoes.
- i) Basil.
- j) Bok choy.
- k) Collard greens.
- l) Head lettuce.
- m) Herbs.
- n) Kale.
- o) Salad greens.
- p) Watercress.
- q) Beets.
- r) Carrots.
- s) Onions.
- t) Cut flowers.
- u) Ornamental plants.
- v) Taro.
- w) Other fruit.
- x) Corn.
- y) Eggplants.
- z) Other rooting crops.
- aa) Gourds and melons.
- bb) Duckweed.
- cc) Leeks.
- dd) Celery.
- ee) Chard.
- ff) Broccoli.
- gg) Cabbage.
- hh) Cauliflower.
- ii) Other. \_\_\_\_\_

**16. Please estimate your aquaponics plant harvest in the previous 12 months at your facility.**

**(Love et al. question 22)**

- a) 1–49 kg
- b) 50–99 kg
- c) 100–499 kg
- d) 500–999 kg
- e) 1,000–4,999 kg
- f) 5,000–9,999 kg
- g) 10,000 kg or more

**17. What types of fish feed were used in the previous 12 months? Check all that apply.**

**(Love et al. question 23)**

- a) Feed pellets. (dry fish feed)
- b) Aquatic plants. (duckweed, azolla, etc.)
- c) Live feed. (insect larvae, black soldier flies, earthworms, Daphnia, etc.)
- d) Food scraps.
- e) Other. \_\_\_\_\_

**18. Which of the following crop production methods were used in the previous 12 months?**

**Check all that apply. (Love et al. question 24)**

- a) Rafts. (planting in floating trays)
- b) Media Beds. (gravel or other media filled boxes)
- c) Nutrient Thin Film (horizontal irrigated trays or gutter planters)
- d) Vertical Towers. (vertical irrigated pipe planters)Wicking Beds
- e) Wicking beds
- f) Irrigation and Dutch Buckets
- g) Other. \_\_\_\_\_

## **FUNDING AND PROFIT**

**19. What sources of money supported your aquaponics operation in the previous 36 months?**

**Check all that apply.**

**(Love et al. question 33)**

- a) Income from fish or crop sales.
- b) Income from aquaponics supplies, equipment, or materials sales.
- c) Income from aquaponics workshops, classes, tours, or public speaking fees.
- d) Income from aquaponics consulting, design, or construction fees.
- e) Government funding or grants (federal, state, or local).
- f) Non-governmental organization gifts and grants.
- g) Private investments.
- h) Bank loans.
- i) Personal investments.
- j) Other. \_\_\_\_\_
- k) Prefer not to disclose.

**20. Was an aquaponics-related job your primary source of income in the previous 36 months?**

**(Love et al. question 30)**

- a) Yes.
- b) No.
- c) Prefer not to disclose.

**21. Please estimate your or your organization's aquaponics related investments in the previous 36 months. (investments in equipment, supplies, material or other expenses related to the aquaponics system). (Love et al. question 34)**

- a) None.

- b) 1–499 €.
- c) 500–999 €.
- d) 1,000–4,999 €.
- e) 5,000–9,999 €.
- f) 10,000–49,999 €.
- g) 50,000–99,999 €.
- h) 100,000–499,999 €.
- i) 500,000 € or greater.
- j) Prefer not to disclose.

**22. Please estimate your or your organization's aquaponics-related gross sales revenue in the previous 12 months? (Gross sales revenue includes the sale of plants, fish, consulting fees, equipment sales, speaking fees, etc.) (Love et al. question 32)**

- a) None.
- b) 1–49 €
- c) 50–99 €
- d) 100–499 €
- e) 500–999 €
- f) 1,000–4,999 €
- g) 5,000–9,999 €
- h) 10,000–49,999 €
- i) 50,000–99,999 €
- j) 100,000–499,000 €
- k) >500,000 €

## **PERSONAL**

**23. Are the following topics personal priorities for your work in aquaponics? (Love et al. question 36)**

- a) Growing my own food.
- b) Improving my health.
- c) Improving the health of my community.
- d) Education and training.
- e) Financial gain, making money.
- f) Faith-based work.
- g) International aid and development.
- h) Environmental sustainability.
- i) Adapting to climate change.

**24. What resources do you use to troubleshoot or solve problems? Check all that apply. (Love et al. question 38)**

- a) Contact other growers (i.e., aquaponics, hydroponics, or traditional farmers).
- b) Online websites, (YouTube, internet community forums).
- c) Print resources (books, magazines, other publications).
- d) Seminars or workshops.
- e) University staff/agriculture extension.
- f) State government agencies (i.e., state fisheries or natural resources agencies).
- g) Federal government agencies.
- h) Other. \_\_\_\_\_

**25. How much do you agree or disagree with the following statements?: (Love et al. question 37)**

- a) I know how to modify the pH of an aquaponics system.

- b) I know how to diagnose FISH diseases.
- c) I know how to diagnose PLANTnutrient deficiencies.
- d) I know how to repair plumbing if something breaks.
- e) I know how to track FISH growth rates.
- f) I know how to manage PLANT pests effectively.
- g) I know the regulations for processing and selling FISH.