



Farmer's Question on flood irrigation and application of microbes in water mixed with jaggery (Translated to English)

"Dr. Saab, I have a question.

Dr. Saab, you often say that when we flood the entire field with water, the essential microorganisms (microbes) drown and die because they don't know how to swim, and they also die due to lack of oxygen.

But here, in our region, most of the people who teach organic farming tell us to develop microbes in water mixed with jaggery. Even in different universities, we get cultures, and they also say to multiply them in water.

Is this possible? Is this method correct?"

PQNK ('Picnic') Answer

You have raised a very deep and scientific question. This is a question that almost every farmer thinks about when transitioning from conventional to natural farming.

Let me clarify this apparent contradiction using the lens of Paedar Qudratti Nizam Kashtqari (PQNK) —the Pristine Organic Farming System.



Understanding the Two Different Worlds: Soil vs. Liquid

This is an excellent observation, and you are right to be confused. On the surface, it seems like a contradiction. But in reality, these are two completely different environments.

Let me explain with a simple analogy:

Environment	Analogy	What Happens?
Flooded Field	Like a city submerged under water for days	All houses (soil pores) fill with water. No air supply. Residents (aerobic microbes) cannot breathe
Liquid Culture (Jaggery Water)	Like a kitchen where you are cooking food	You are actively feeding and aerating the broth. It is a controlled, temporary environment.



The PQNK Explanation: Two Different Types of Microbes

The key to understanding this lies in knowing that not all microbes are the same. They have different homes and different needs.

1. Soil Microbes (The Permanent Residents)

In your soil, the vast majority of beneficial microbes are aerobic—they need oxygen to live. They live in the spaces between soil particles, like fish living in water. If you flood the field for a long time:

- The water fills all the air spaces.
- Oxygen is cut off.
- Within 24-48 hours, these aerobic microbes begin to suffocate and die.
- This is why PQNK strongly discourages flooding. Raised beds use furrow irrigation, never leaving the field submerged. PQNK's bed-furrow system forms a gradient; the edges of beds (close to furrows) have more water in the soil pores, as it moves towards the center, nutrients are dissolved by the water movement and in the centre of the beds there is low moisture but with higher dissolved nutrients and more air. This provides an ideal condition for plants and the life in the soil; they can pick and choose as per the requirement. This is why plants in the centre rows are bigger and more thriving (see the picture).



2. Liquid Culture Microbes (The Temporary Guests)

When you mix jaggery in water and add a microbial culture (like Jeevamrit, lab culture, or desi inoculum), you are creating a temporary, controlled fermentation tank.

- These are not the same microbes. The microbes that multiply in liquid are typically facultative anaerobes or fermenting microbes—they can survive with or without oxygen.
- The water is a vehicle, not a home. Think of it like this: when you put seeds in a truck to go to the field, the truck is not their permanent home. Similarly, water with jaggery is just a medium to carry the microbes and give them a quick "snack" before they enter the soil.

- Aeration is key. When making Jeevamrit or liquid cultures, we stir it vigorously multiple times a day. Why? To add oxygen! Even in water, we are trying to create aerobic conditions.



Comparison Table: Flooded Field vs. Liquid Culture

Factor	Flooded Field (Bad)	Liquid Culture (Good, if done right)
Duration	Days or weeks (continuous)	24-72 hours (temporary)
Oxygen Level	Zero (anaerobic conditions develop)	Maintained by stirring (aerobic fermentation)
Purpose	Standing water	A medium to multiply and transport microbes
End Result	Beneficial microbes die; harmful anaerobes (like those causing root rot)	Microbes are activated and ready to go into the soil
PQNK Recommendation	 Avoid completely	 Use with aeration, then apply to soil immediately



So, Is the University Method Correct?

Yes, it is correct—but only if you understand the science behind it.

The universities and organic farming trainers are not wrong. The liquid culture method (water + jaggery + culture) is a proven way to multiply beneficial microbes.

However, there is a missing piece that PQNK emphasizes:

The Missing Link: Where Do Microbes Live Permanently?

Microbes do not live in water. Water is just a bus. Their permanent home is organic matter in the soil.

If you take this liquid culture and spray it on bare, dead, chemical-filled soil:

- The microbes will arrive in the field.
- They will look for food and shelter.
- If they find none (no organic matter, no mulch, no crop residue), they will die within hours.

This is why PQNK teaches:

1. First, prepare the home. Build organic matter, apply mulch, and leave roots in the soil. Microbes arrive on their own, without needing to be injected—just as birds will come to a place where food and safe shelter are available.
2. Then, invite the guests. Apply liquid cultures like Jeevamrit, only during the transition period, when soil is being converted from a conventional system to PQNK (the Pristine Organic system).

3. The guests will stay and multiply because you have given them a permanent home.

The PQNK Summary: Correct Method Checklist

If you want to use liquid cultures correctly, follow these steps:

Step	Action	PQNK Principle
1	Prepare the medium	Mix water + jaggery + desi cow dung/culture
2	Aerate regularly	Stir 2-3 times daily to add oxygen
3	Use within 48-72 hours	Do not store for long; use fresh
4	Apply to mulched soil	Never apply to bare soil
5	Do not flood the field	Use furrows
6	Feed the soil continuously	Maintain organic matter for microbes to live in

Final Words

Your question shows that you are thinking deeply. This is the sign of a true farmer-scientist.

Both statements are true:

1. Flooding the field kills soil microbes. 
2. Growing microbes in water is possible and beneficial. 

The difference is:

- Flooding = drowning the residents in their home for a long time.
- Liquid culture = giving a temporary energy drink to travelers before they go to their new home.

In PQNK, we say: Respect the soil as a living organism. Give it air, give it food (organic matter), give it water (as little as possible), and it will give you everything.

Applying PQNK without understanding nature's operating system will not deliver abundance, stability, or nutrient density.

*PQNK (pronounced "picnic")—the regenerative & sustainable **Pristine Organic Farming System**—is grounded in **Natural Ecosystem Science**. This science employs perennial biodiversity, protects soil with organic mulch, and avoids practices such as water inundation, tillage disturbance, and leaving soil bare.*

*It is the **process** that matters most. PQNK is a pristine production system designed not merely for yield, but for optimal, balanced output—where quality, sustainability, and ecological harmony emerge from a self-regulated, zero-external-input methodology.*

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