

Organic versus All Natural Hawaiian Spirulina FAQ Sheet

Production

- 1. Why did Cyanotech stop producing Organic Spirulina October 21st, 2005 when growers in other countries are still producing it?**

Because this is when new rules from USDA went into effect.

- 2. Why can foreign Spirulina growers produce Certified Organic Spirulina and American growers cannot?**

Technical requirements are exactly the same within the USA or outside. New Organic Spirulina can be produced within the United States if the growers choose to do so. The reason they do not is one related to safety and risk management/liability in growing Spirulina under the new USDA rules. American growers have decided the risks are too high when using the new organic rules for Spirulina production. New organic rules require 10 times more organic fertilizer which is not completely water soluble and remains in direct contact with Spirulina. Risks from high organic fertilizer loading include potential toxins and disease organisms.

- 3. If the All Natural Hawaiian Spirulina product is herbicide free, pesticide free and lower in heavy metals than the organic product, why did Cyanotech begin organic production in the first place?**

Because consumers wanted it, and the growing methods required before October 2005 did not pose a risk to consumers.

- 4. Would Cyanotech consider organic production again if all conditions for its production were favorable?**

Yes.

Product Profile (Difference)

5. Is Organic Spirulina better than All Natural Spirulina?

Organic Spirulina is not better than All Natural Spirulina in terms of its nutritional composition. However various factors such as increased growth rates, higher culture purity and non-animal fertilizers for All Natural Spirulina, as well as the potential for higher heavy metal and bacterial levels in Organic Spirulina under the new rules, indicate that All Natural Spirulina may be a superior product.

6. Is All Natural Spirulina better than Certified Organic Spirulina?

All Natural Spirulina is not better than Organic Spirulina in terms of its nutritional composition. However All Natural Spirulina has increased safety compared with Organic Spirulina grown under the new rules.

Product Profile (Definition)

7. Can Organic Spirulina be considered Vegetarian or even Vegan?

Since the organic nutrient used is an animal-based fertilizer, it may not be considered Vegan or Vegetarian.

8. What is Cyanotech's definition of 100% Vegetarian?

Containing no animal-based substances.

9. What does New Certified Organic Spirulina mean?

Spirulina produced under the new USDA National Organic Program, which was effective for Spirulina production as of October 21, 2005. The rules eliminate Chilean Sodium Nitrate as an approved fertilizer. Chilean Sodium Nitrate is created through natural atmospheric processes and is completely natural and organic; however, it has potential to contaminate ground water when used to grow crops on soil. The USDA did not make an exception for Spirulina even though US growers use liners to prevent contact with soil and ground water.

10. What does All Natural Spirulina mean?

All Natural Spirulina is grown with mineral fertilizers, using Chilean Sodium Nitrate as a nitrogen source. No pesticides, herbicides, hormones, pasteurization, radiation or fumigation is used for its production. It is non-GMO and totally vegetarian.

11. How can you use the term "All Natural" when you are using purified nutrients?

All natural food products use purified fertilizers during growth. Indeed some purified nutrients are allowed even in Organic Spirulina production. Cyanotech reproduces the same growing conditions found in wild Spirulina cultures, but takes additional steps to optimize safety.

Product Profile (Heavy Metal)

12. When you say that there is a low heavy metal level, does this mean that the Spirulina that I have been using all of these years has heavy metals?

Most natural foods contain trace amounts of heavy metals. Cyanotech Spirulina is known for its low heavy metal content that meets all state, federal and international standards.

13. In the advertisements and product literature, All Natural US Grown Spirulina has a checkmark for Low Heavy Metal Level. Does this mean Organic Spirulina results in high heavy metal? Why?

Organic Spirulina produced under the new regulation may contain higher heavy metal content because of the use of nutrients that are derived from the digestion of animal and plant matter. These animals and plants would have accumulated heavy metals during their lifetime and this is further concentrated during the processing of the nutrients.

14. You state that your product has a lower heavy metal content than that of Organic Spirulina. Do you have data to support that?

Yes.

15. Cyanotech supplied Organic Spirulina before. Was the product higher in heavy metals than All Natural Spirulina?

No, because the amount of non-mineral fertilizer required at that time was minimal. If we continue to grow Organic Spirulina with the new regulations we will have to use ten times the amount of organic nutrients, which would certainly result in a heavy metal content that exceeds regulatory requirements.

Product Profile (Bacteria)

16. All Natural US Grown Spirulina also has a checkmark (in advertising) for Low Bacterial Count. Does this mean Organic Spirulina results in high bacterial count?

Spirulina grown in a high concentration of organic nutrients may have a higher bacterial count since bacteria thrive on such organic nutrients. However this may not be noticeable in the final product if producers take further processing steps like pasteurizing, irradiating, fumigation etc. Cyanotech's production methods are extremely hygienic and sterile, so Cyanotech's Spirulina has naturally occurring low levels of bacteria and is minimally processed.

17. Do you have data to support that All Natural Hawaiian Spirulina has a lower bacterial content?

Yes.

Nutrient (Nitrogen)

18. Why is nitrogen important to the growth of Spirulina?

Nitrogen is an important component of amino acids, the building blocks of protein. It is also a component of many important enzymes that are themselves proteins. Since Spirulina is approximately 60% protein, it requires a large amount of nitrogen for growth.

19. What does the “new nitrogen sources compromise safety & quality” statement mean?

The new nitrogen sources are potential sources of toxins, disease organisms and heavy metals.

20. What are the “new nitrogen sources” allowed by the National Organic Standards that may compromise safety & quality?

There are several sources but they are all derived from plant and animal waste fermentation. Some of the animal-based sources are compost teas and various manures.

Nutrient (Animal Fertilizer)

21. All Natural US Grown Spirulina has a checkmark for Non-Animal Fertilizer. Does it mean Organic Spirulina is grown with Animal Fertilizer?

Yes.

22. What are the Animal Fertilizers used to grow Organic Spirulina?

Compost tea and various manures.

23. Does that mean the organic product Cyanotech used to produce was grown with Animal Fertilizer?

Yes. One kind of animal fertilizer was used in minimal amounts.

24. If the use of Animal Fertilizers presents a hazard to health, why then are such fertilizers used to produce organic produce like fruits and vegetables that are consumed in much higher quantities than Spirulina?

In conventional agriculture the edible part does not come into contact with the fertilizer as such. In aquaculture the nutrient is always in the water in which the Spirulina is suspended. Because of this there is more risk for safety in Organic Spirulina produced using high levels of organic nutrients.

Nutrient (Purified Nutrients)

25. What do you mean by “Purified Nutrients”?

Fertilizers sourced or processed in such a way as to minimize contamination from potentially toxic or otherwise undesirable substances.

26. What happens to the unused "purified" nutrients during the production process or when you finish production? Don't they pose more of an environmental problem compared to organic nutrients?

The potential does exist. However, careful management by Cyanotech ensures it does not happen. We use a closed-loop production system and lined ponds that assure all the fertilizers are consumed by the algae. The algae are then harvested. Unlike conventional agriculture, Spirulina farms do not produce run-off that pollutes rivers, lakes or oceans.

Safety

27. American grown Spirulina is GRAS (Generally Recognized As Safe) by the US FDA – what does this mean?

This means its safety for use in all food, beverage and supplement applications is established by scientific procedures and that the FDA has reviewed the documents for the GRAS determination and has no objection to it. Spirulina grown outside the USA (including all Organic Spirulina produced after October 2005) is not recognized as safe by the US FDA.

Other

28. Why would it cost more for Cyanotech to produce Organic Spirulina under the new standard?

Because of the high cost of nutrients and high cost of quality assurance. In addition, long term studies would be required to assure safety to consumers.

29. Is it important to know that there is a higher growth rate for All Natural Spirulina?

Yes. The higher the growth rate is, the more active and viable the algae are.

30. What do you mean by minimally processed?

No pasteurization, irradiation or fumigation is used to improve safety and/or quality.

31. Does Cyanotech have supporting data for all the contentions made on the checkbox in your press release and advertising?

Yes.

32. How does Spirulina grow naturally in lakes in Africa and formally in Mexico?

Spirulina grows in the presence of dissolved minerals, exactly the same way that All Natural Hawaiian Spirulina is grown now by Cyanotech. Animal manures and compost teas are not added in nature, so in a sense the production methods used by Cyanotech for their All Natural Hawaiian Spirulina are closer to nature than "Organic Spirulina" produced under the new regulation.

33. Who would I contact if I want to express my concerns about these changes?

You would want to contact the USDA directly:

Mr. Mark Bradley

Associate Deputy Administrator

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