Company Name: BEST Spinach, Inc.

Company Address: 12345 Leafy Road
Sunny Ville, CA 91531

Product Description : ***BEST's Fresh Cut Baby Spinach*** in re-sealable environmental controlled packaging

Method of Storage and Distribution:

The ***BEST's Fresh Cut Baby Spinach*** is stored in temperature controlled refrigerator units. The spinach is distributed via company refrigerator trucks.

Intended Use and Consumer:

BEST's Fresh Cut Baby Spinach is intended to be used in salads, sandwiches or can also be cooked.
Best's Spinach consumers are retail grocery store shoppers

Name: Tiffany Wilson	**Title**: Director of Quality Control	**Date**: 09-23-09
Name: Louisa Bayoud	**Title**: Quality Control Manager	**Date**: 09-23-09
Name: Eva Star	**Title**: Quality Control Inspector	**Date**: 09-23-09

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INGREDIENT ANALYSIS FOR POTENTIAL HAZARDS

INGREDIENTS	HAZARDS Biological Chemical Physical	LIKELIHOOD OF OCCURING	COMMENTS (Preventative measures)
SPINACH	**Biological:** * Human * Cooling *Washing, rinsing * Storage (i.e. pest)	High	- Sanitation training - Time, Temperature, Humidity - Water control (i.e. potable standard) - Pest control program, monitoring and application of chemicals.
	Chemical: * Pesticide	Low	-Verification of residues and withholding periods and residues
	Physical: *Dirt, wood pieces, stones, metal *Equipment, i.e conveyor belt	Medium Medium	-Washing procedure, and detection of foreign substances during processing, - Maintenance of equipment, repair and chemical use for cleaning of equipment.
WATER	**Biological:** * Pathogens in water	High	- Sanitation schedule, cleaning of pipes and water compliance
	Chemical: * Pesticides	High	- Measurement of sanitizing and chemicals
	Physical: * Irrigation	Low	- Check system for deterioration of piping.

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Process Analysis Plan

Step	Process Step	Hazard Type / Possible Hazard?	CCP?	Preventative Measures Taken
1	Soil Preparation and Machine Harvesting	**Biological:** - Pathogens from the soil and the water, or past loads in machine **Chemical:** - Residue from the pesticides used, or chemicals from the harvester **Physical:** - Objects from the field (stems, rocks, insects, etc), or broken parts from the harvester	YES	*(Some will be addressed at the processing facility, but the machine that is used to harvest will need to be addressed at the farm.)* - Clean the harvester after every load (bins, etc.) - Keep the harvester's maintenance (log book, mechanical) up to date - Train all personnel that use the harvester
2	Receiving	**Biological:** - Pathogens from the soil **Chemical: -** Residue from the pesticides used, over use of chemicals to rise produce **Physical:** - Objects from the field (stems, rocks, insects, etc)	YES	- Rinse produce with cleanser to remove pesticides or pathogens - Having a list of pesticides to check for - Visual check done in subsequent steps
3	Storage	**Biological: -**Growth of pathogens due to poor temperature or humidity control, and inadequate pesticides **Chemical:** N/A **Physical:** N/A	NO	**These are addressed by prerequisite programs* - Know the pesticide used, and the levels - Know the levels that the produce should be stored - Keep records
4	Rinsing/ Washing	**Biological: -**Water not being filtered accurately **Chemical: -** Over use of chemicals **Physical: -** The items used in the filtration system	YES	- Measuring of the chemicals used - Keeping a log of the amounts and types of chemicals used - Training the personnel **Chemical hazard only*
5	Sort (Visual)	**Biological: -** Pathogens introduced by bad personal hygiene by sorters **Chemical: -** improper cleaning of the surface used for sorting	NO	**These are addressed by prerequisite programs* - Making sure GLP & GMP's are adhered to - Proper strength and type of cleanser for the surfaces

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Process Analysis Plan

Step	Process Step	Hazard Type / Possible Hazard?	CCP?	Preventative Measures Taken
		Physical: - Items worn by the sorters falling into the produce		
6/9	Metal Detection	**Biological: -** N/A **Chemical: -** N/A **Physical: -** Broken machine	YES	- In sure proper maintenance be done (records, calibration, etc.)
7	Packing	**Biological: -** Pathogens introduced due to bad personal hygiene of packers; improper storage areas; **Chemical: -** Pest control **Physical: -** N/A	NO	- Making sure GLP & GMP's are adhered to - Know the levels that the produce should be stored - Keep records
8	Labeling	**Biological:-** N/A **Chemical:-** N/A **Physical:-** N/A	NO	- No hazard
10	Cold Storage	**Biological: -**Growth of pathogens due to poor temperature or humidity control, and inadequate pesticides. Growth of pathogens due to poor temperature or humidity control.	NO	**These are addressed by prerequisite programs* - Know the temperature that the produce should be stored - Keep records
11	Transportation vendors	**Biological: -** Growth of pathogens due to poor temperature or humidity control Growth of pathogens due to poor temp. or humidity control.	NO	*These are addressed by prerequisite programs* - Know the temperature that the produce should be transported - Keep records
12	Pest control in all areas of processing and delivery	**Chemical: -** Pesticides	NO	- Pest Control Program in place, with records of monitoring, sightings logs, and application of chemicals.

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Critical Control Points

CCP	Critical Limits	Monitoring Method				Corrective Action
		What	How	How often	Who	
Agricultural water	Limits established by the EPA according to the National Recommended Water Quality Criteria [1]	**Biological Hazards** *Escherichia coli, Salmonella* spp., *Vibrio cholerae, Shigella* spp., *Cryptosporidium parvum, Giardia lamblia, Cyclospora cayetanensis, Toxiplasma gondii,* hepatitis A viruses [2] **Chemical** Pesticides	A series of water samples taken over a given period of time and weighted by flow rate. (EPA 2005b) A sample of water, soil or other medium which is made by combining samples from two or more locations. (NYDOH1999) By a MPN (most probable number) tests Anerobic and arobic plates [3]	Before planting and during growth weekly or after rainfall.	QC Manager	Eliminate contamination, drain and sanitizes water, protect surface waters from livestock and wildlife, control run off waters with control s structures.

[1] http://www.epa.gov/waterscience/criteria/wqctable/nrwqc-2009.pdf

[2] http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlanProducts/ucm064574.htm

[3] http://www.epa.gov/waterscience/criteria/humanhealth/microbial/thesaurus/T54.html

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Critical Control Points

CCP	Critical Limits	Monitoring Method				Corrective Action
		What	How	How often	Who	
Harvesting Soil	Check for minimum risk pesticides as defined by 40 CFR 152.25(f)[4]	Chemically Pesticides Biological: enteric pathogens salmonellosis Salmonella sp.), cholera (Vibrio cholerae), dysentery (Shigella sp.) and other infections caused by Campylobacter jejuni, Yersinia sp. Hepatitis A, hepatitis E, and Escherichia coli O157:H7[5]	Soil testing	Before planting, after rain and before harvesting.	Quality Control Manager	If field is contaminated, no planting. If spinach is contaminated before harvest then discard the whole crop
Receiving	Critical standardized by EPA	Biological pathogens Chemical Pesticides	Lab test	Daily inspections	Quality control Inspector	If spinach is infected, removal of the batch and do further inspections of other batches and

[4] http://pesticides.custhelp.com/cgi-bin/pesticides.cfg/php/enduser/std_adp.php?p_faqid=5255&p_created=1215898214&p_sid=pkSsSrIj&p_accessibility=0&p_redirect=&p_lva=5181&p_sp=cF9zcmNoPTEmcF9zb3J0X2J5PSZwX2dyaWRzb3J0PSZwX3Jvd19jbnQ9MTc0LDE3NCZwX3Byb2RzPTAmcF9jYXRzPSZwX3B2PSZwX2N2PSZwX3BhZ2U9MSZwX3NlYXJjaF90ZWNrIGZvciBQZXN0aWNpZGVz&p_li=&p_topview=1

[5] http://www.ncbi.nlm.nih.gov/pubmed/12730707

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Critical Control Points

CCP	Critical Limits	Monitoring Method				Corrective Action
		What	How	How often	Who	
		Physical Rocks and dirt				investigations of hazards
Washing	Limits established by the EPA according to the National Recommended Water Quality Criteria [6]	Check water for chlorine and pathogens	Lab test	Weekly inspections	Quality Control Manager	If spinach is contaminated then discard the whole batch and check other batches Readjustment of water chemicals, sanitizing of equipment supplying water
Metal detection	None	Physical Machinery erosion and pieces	Metal detector with magnetic detector	Monthly inspection	Director of Quality Control	If spinach is contaminated with metals dispose of batch and examine machinery

[6] http://www.epa.gov/waterscience/criteria/wqctable/nrwqc-2009.pdf