



Kachemak Kelp/Sea to Sprout 2026 Biostimulant Application Protocol/Recommendations

Updated 6/10/26

Generalized application recommendations

- Dilute 1:100
- Standard application ½ quart/acre
- Apply at the recommended dilution every 1–4 weeks during active growth.
 - Every 1–2 weeks during establishment or periods of plant stress
 - Every 3–4 weeks in stable growing conditions
- Seeds: Soak 8–24 hours before planting to support strong germination.
- Transplants: Dip seedlings at transplant to help reduce shock.
- Sea to Sprout can be applied on its own or alongside regular fertilizer protocol as part of your regular plant care routine. Biostimulants and fertilizers have different modes of action, so will not overwhelm plant or soil biology, and can act synergistically. For best results, apply at the recommended dilution during key growth stages, especially during establishment and periods of environmental stress.

Expanded recommendations for frequent/regular use throughout the growing season:

- For sensitive crops or new trials: 7 teaspoons per gallon.
- For robust crops once you are confident: 7.5 teaspoons per gallon.
- Err on the side of a more dilute solution at first, a little goes a long way.

For home garden use - per 100 square feet

Using a normal watering volume (1-2 gallons), mix the recommended amount per gallon of kelp concentrate.

- Dilute 1:100 - (for home garden use = 7.5 teaspoons per gallon)
- Water normally at plant base,
- Adjust based on watering frequency
- Apply additional water as needed - it will not diminish the impact of the efficacy of the biostimulant.

Alternatively, for spray/foliar application on a 100 sq ft garden bed, mix at the same ratio and apply enough to cover leaf and stem surfaces.

Sea to Sprout 2026 field test application protocol*

(*gleaned from 2025 field trials, scientific literature and similar product application guidelines - used to inform Hubbard Ag Sciences field trial protocol, but protocol generalized across 3 products specifications)

Typical soil drench applications use 10-25 gallons per acre based on industry standards

Both foliar spray and root drench applications offer distinct advantages, with foliar application providing rapid nutrient delivery (see [Frioni et al 2021](#)) while root drench enhances soil biology and long-term plant resilience (see [Ali et al 2021](#))

Crop	Application type	Concentrate rate/ac	Notes at 1:100 (per application)
Pepper	Foliar	1 qt/ac	14–21 day* interval vegetative→fruit
Pepper**	Soil drench	0.5 qt/ac (establish)	Transplant water or early drip
Tomato**	Foliar	1 qt/ac	14–21 day* interval, larger canopy
Tomato	Soil drench	0.5 qt/ac	Transplant and early drip/furrow
Potato	Foliar	1 qt/ac	Target emergence, tuber initiation, bulking
Potato	Soil drench	1 qt/ac	In-furrow at planting
Leafy greens	Foliar	0.5 qt/ac	Short growing cycle; lighter but more frequent sprays
Leafy greens	Soil drench	0.5 qt/ac (establish)	At planting/emergence only

* Follow 21 + day interval if soil application

****Root/transplant dip:** Dip roots for 5 minutes in 1:100 solution before planting

TOMATO

Number of Applications: 4-5 applications per growing season

Application Timing

1. **Transplant/Seedling Stage:** At or immediately after transplanting (or at 3-4 leaf stage for direct-seeded)
2. **Vegetative Growth:** 14 days after first application
3. **Pre-Flowering:** Just before first flowers appear
4. **Early Fruit Set:** When first fruits reach 4mm diameter
5. **Mid-Season Boost** (optional): 14-21 days after fruit set

Amount per Acre

- **Total spray volume:** 20-50 gallons per acre (ground application) or 7-10 gallons per acre (aerial application)
- **At 1:100 dilution:** Mix 2-3 gallons concentrate with water to achieve total spray volume

Application Method

- **Foliar spray:** Preferred method for most applications
- **Soil drench:** Acceptable at transplant stage
- **Root dip** (transplants): Dip roots for 5 minutes in 1:100 solution before planting

POTATO

Number of Applications: 3-4 applications per growing season

Application Timing

1. **At Planting:** Immediately after planting seed potatoes (optional seed piece soak for 15 minutes)
2. **Emergence Stage:** 4-5 leaf stage (approximately 3-4 weeks after planting)
3. **Tuber Initiation:** At stolon development/early tuberization (approximately 6-7 weeks after planting)
4. **Tuber Bulking:** Mid-bulking stage (14-21 days after tuber initiation)

Amount per Acre

- **Total spray volume:** 20-50 gallons per acre (ground application)
- **At 1:100 dilution:** Mix 2-4 gallons concentrate with water to achieve total spray volume
- **Seed treatment:** Use 1:100 dilution for soaking seed pieces

Application Method

- **Foliar spray:** Primary method during vegetative and tuber development stages
- **Seed soak:** 15-minute soak before planting enhances emergence
- **Soil application:** Can be applied at planting with in-furrow application

Special Considerations

- Avoid high nitrogen applications during tuber bulking; kelp provides balanced growth hormones
- Focus on potassium-supporting applications during bulking for tuber size and quality

PEPPER

Number of Applications: 4-5 applications per growing season

Application Timing

1. **Transplant Stage:** At or within 3 days of transplanting
2. **Vegetative Growth:** 14 days after transplanting
3. **Pre-Flowering:** Just before first flower buds appear
4. **Early Flowering:** At 30-50% bloom
5. **Fruit Development:** 14-21 days after flowering begins (repeat if extended harvest)

Amount per Acre

- **Total spray volume:** 20-50 gallons per acre (ground application)

- **At 1:100 dilution:** Mix 2-3 gallons concentrate with water to achieve total spray volume

Application Method

- **Soil applications:** Primarily at transplant and/or if focus is on improving soil health/conditions 2-3x/growing season
- **Foliar spray:** Preferred for all growth stages
- **Transplant drench:** Soak seedling tray or root ball before transplanting with 1:100 solution
- **Weekly light applications:** Can substitute with lighter applications (1-1.5 gallons concentrate) every 10-14 days

GENERAL APPLICATION GUIDELINES

Timing Best Practices

- Apply early morning or late afternoon to minimize leaf burn and maximize absorption
- Avoid application during extreme heat (>85°F/29°C)
- Apply 3-5 days before anticipated stress events (drought, temperature extremes)
- Do not apply foliar spray within 7 days of harvest for food safety

Spray Volume Considerations

- Ensure adequate coverage: spray until runoff for optimal foliar uptake
- Use finer droplet size (200-300 microns) for better leaf adhesion
- Include non-ionic surfactant (0.1-0.25% v/v) to improve coverage if needed

Tank Mixing

- Compatible with most fertilizers and pesticides (conduct jar test first)
- Apply kelp biostimulant separately from highly alkaline materials
- Do not mix with copper-based products

Storage and Handling

- Store concentrate in cool, dark location
 - Mix fresh spray solution for each application
 - Use mixed solution within 24 hours for best results
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