

**Kodiak Archipelago Leadership Institute  
Alaska Ocean Farms and Alaska Sea Grant  
Joint Innovation Project:  
PILOT SCALE FORCED-AIR DRYING AND MILLING OF  
FARMED KELP**

**THE ECONOMICS OF DRYING**

**By Lexa Meyer**



# What Costs are Associated with Drying?



- **Utilities – Electricity**
- **Cost of the Kelp**
- **Equipment**
- **Rent**
- **Labor**
- **Supplies/Packaging**

# Utilities

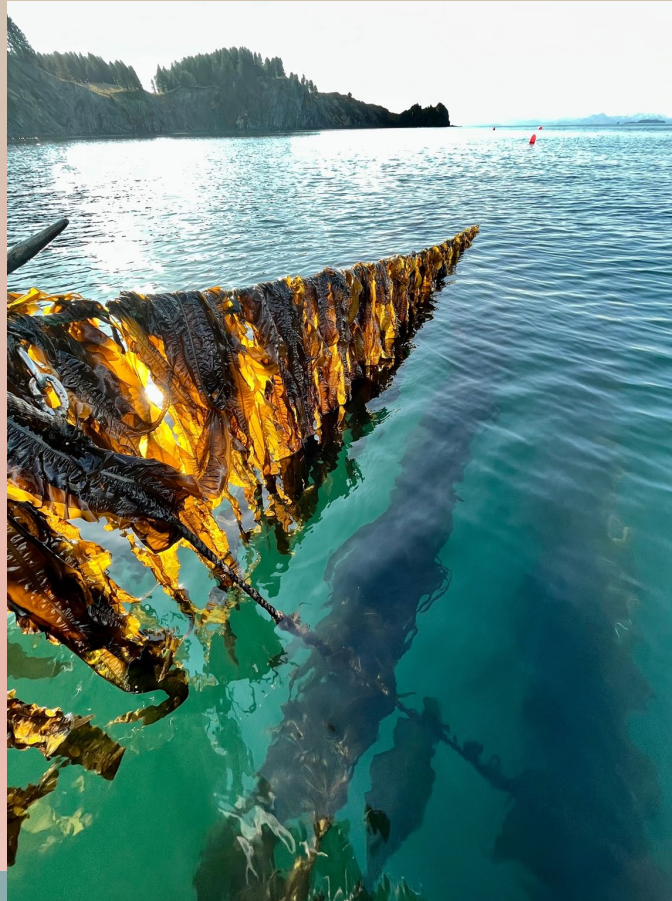
Electricity: ADQ = \$0.1955/300 kWh then  
\$0.17, \$15/month customer fee

Renewable energy, relatively low cost, KSMSC  
Dryer 8h drying cycle @ 19.5 kW = 156 kWh x  
\$0.17 = \$26.52 ~ 10 lbs. dried kelp = \$2.652/lb.  
of dried kelp produced



# *Cost of Kelp*

- Between \$0.45-\$0.50/lb. for food grade kelp
- High upfront cost of the product, decades to lower cost of production, remember the reduction from fresh to dried is 10:1. That's \$4.50-\$5.00/lb. of dry kelp!



# Equipment

- Equipment: Dryer = \$35,000-\$90,000 installed, Mill = \$10,000-\$25,000, press = \$30,000
- Expensive up-front costs, mid range <\$100,000



# Rent

- Space is an issue in all communities, needs to meet food safety standards, power, water



# Labor

- Labor = 2 people/4-8 h @ \$16.50-\$18.00 plus manager
- Labor can be difficult to source, produce 10-100 lbs. dried in 4 h shift. ~ \$132/10 lbs. = \$13.20/lb.!



# Supplies and Packaging

- Supplies/Packaging = silicone mats, scoops, packages, drums, heat sealer ~\$0.50/0.5 lb.
- Bulk packaging is cheaper! CPG may require more equipment. ~\$1.00/lb.



# *What Can Lower Costs?*

Grand total: \$15.85/lb.! So what is your wholesale price?

- Produce More Dried Kelp, cost of the kelp is more but your savings in labor is huge!
- Bulk packaging is a massive savings.
- Value added products? Low volume of kelp for a higher price, fits with serving size.
- Can you reduce drying time by half? Press the kelp?
- Who is the intended market? High value markets often have lower sales.
- Free or low-cost space rental.
- Offset by cheaper processing, grinding and inoculation.
- Food Safety and Recordkeeping- avoid costly product recalls!