Innovative Vertical Farming
Sustainable Agriculture in an Urban Center: Las Vegas

A Collaborative Effort in Support of Diversifying Nevada’s Economy, Enhancing Innovation, and Promoting Sustainability through Outreach
Collaboration with Governor’s Office of Economic Development & Las Vegas Community

• Opportunity provided by Governor’s Office of Economic Development: Urban Agriculture Initiative
• Nuvege: subsidiary corporation of Spread Co. Ltd., Kyoto, Japan
  • Mr. Shinji Inada, President & CEO
• Nuvege: eco-friendly Vertical Farming solution, guaranteeing fresh produce (lettuce) can be grown in fully protected environments.
• Vertical Farming Environments: utilize “vertical space” for a highly controlled growth environment.

Nuvege Goals:
1. Build sustainable urban agricultural center in Las Vegas to producing different types of lettuce
2. Support and conduct R&D
3. Promote outreach and offer educational on a sustainable planet

(WORKFORCE, RESEARCH & ECONOMIC DEVELOPMENT COMMITTEE 06/06/13) Ref. WRED-6, Page 2 of 11
Nuvege’s Vision & Impact
Introduction to Spread Co. Ltd. Kameoka Plant, Japan
(Nuvege, a Subsidiary Corporation of Spread Co. Ltd.)

Background and Production Statistics:
- Established in 2007 on ~52,000 ft² site
- Building: ~31,000 ft² x 52 ft high
- Growing area: ~271,000 ft²
- Methodology: Indoor vertical farming
- Produce: 7.6 million heads of lettuce per year
- Yield: 760 tons per year
- Power Source: Electricity

Technology & Business Process:
- Research & Development
- Environmental Control & Management
- Volume (Mass) Production
- Hygiene Management
- Distribution
- Marketing
Sustainability, New Technologies and Research & Development

- 30% savings in electricity costs with LEDs
- 50-70% reduction in water consumptive rate
- 20% savings in labor costs
- Better management of nutritional value
- Decreased production time
- Faster delivery time to market, restaurant
- Taste influenced by a significant reduction in viable bacteria
Benefits & Current Customers

- **Food** - dependable and efficient systems for producing high quality food on a year-round basis
- **Resources** - recycles precious water
- **Health** - uses CO² and produces oxygen while eliminating soil drainage, all without using pesticides
- **Environment** – reduces travel and food mileage, lowering carbon footprint
- **Education** – provides a place to develop and implement new ideas
- **Economics** – brings a new industry into local economics

**Customers in Japan:**
- 700 Japanese Restaurants, including Subway
- United Airlines
- Disneyland Japan
- US Army Bases
Current Status: Collaboration among Nuvege, DRI & Springs Preserve

- Conducted three business meetings between Nuvege corporate leadership, DRI and Springs Preserve administrative leadership
- **MOU signed between Nuvege and DRI.**
- Evaluating two-acre site location on Springs Preserve for –
  1. Nuvege production
  2. Nuvege/DRI research & development
  3. Nuvege/Springs Preserve/DRI outreach and educational opportunities.
- Reviewing draft MOU between Springs Preserve and DRI for two acres.
- Established milestones and deadlines on April 25, 2013.
- Nuvege assessing business plan.

**Ultimate goal with appropriate Board approvals:**

1. DRI & Springs Preserve MOU
2. DRI lease site from Springs Preserve
3. DRI sublease site to Nuvege
DRI and Nuvege Collaboration

Builds upon DRI strengths in soil and hydrological sciences as well as emphasis on arid agriculture research.

Collaboration may include:

1. Setting up a facility at that will address Research and Development in urban agriculture, commercial production of fresh produce and educational components for the public.

2. Joint execution of basic and applied research sponsored by federal and state agencies and private organizations.

3. Development of research-faculty exchange programs, establishment of student research internships, development of cooperative work programs to provide research opportunities to students, and other similar research-related initiatives.
Springs Preserve & Potential Site Location
Nuvege Vision: Urban Agriculture Center in Las Vegas
Urban Agriculture Center & Innovative Vertical Farming: The Future of Las Vegas, Nevada?