For Session 1 of Technology-Enabled Entrepreneurship

The source of this is TABLE 2.19 from Technology Ventures, 2/e

**Mission:** AgraQuest’s mission is to be the best and most efficient at discovery and development of environmentally friendly natural products for pest management.

**The business:** AgraQuest discovers, develops, and markets environmentally friendly natural product pesticides from micro-organisms. It has three sources of revenues: (1) sales of natural product pesticides to farmers and consumers, (2) sales of lead molecules that do not fit our development criteria to large pesticide companies, and (3) contract testing for pesticide companies.

**Market need and market opportunity:** Twenty-five billion dollars are spent each year on chemical pesticides. Consumers have increasing expectation that their food is free of pesticide residues. Society has increasing expectation concerns about how chemical affect the environment, including fish, wildlife, groundwater, and air quality. The regulatory agencies are responding by establishing stricter criteria for registration of new chemical pesticide products and reregistration of older ones. The cost and time for registering a new chemical pesticide have ballooned to $40-70 million and 7-10 years. As a result a few products are being registered and many older products are being taken off the market or are so tightly regulated that their use is limited.

**Technology:** Natural products are substances produced by microbes, plants, and other organisms that can kill pests. Unlike natural products, currently marketed biopesticides, such as Bacillus thuringiensis (Bt), insect viruses and insect-killing fungi, use living organisms as pesticides. As a result they are negatively affected by heat, wind, rain and sunlight. Therefore, they do not have efficacy as good as chemical pesticides and have not significantly penetrated chemical pesticide markets. Natural products can have efficacy against the targeted pest that is as good as chemical pesticides. This is not speculation. We have found them. We know they are there. Unlike many chemical pesticides, natural products are biodegradable and specific to the pest, without harmful effects on fish, wildlife, and beneficial insects.

Microbial natural products can be registered with the U.S. Environmental Protection Agency (EPA) as “biochemicals.” This means that bringing a specific natural product to the market takes considerably less time and money (approximately 3-5 years and less that $5 million) those chemical pesticides.

**Competition:** If microbial natural product pesticides are so ideal, why aren’t they the target of large companies? Pharmaceutical companies have the technical expertise for discovery of microbial natural products with pesticide activity, but they are often not set up to assess agricultural applications of the molecules and lack the knowledge and experience to commercialize them. There is currently no independent company dedicated to screening for microbial natural product insecticides, fungicides, nematicides and herbicides.

**Company’s competitive advantage:** AgraQuest can find a higher number of novel pesticidal natural products more quickly than anyone else. We have unique knowledge of the groups and sources of micro-organisms that yield the highest number of novel pesticidal natural products. Our proprietary isolation and fermentation media generate higher number of “hits”. We find more novel natural products because of our focus on difficult chemistry that very few in the in the industry attempt. We have proprietary automated, high-throughput in-vivo and in-vitro pesticidal and extraction assays. At a very early stage, we can rapidly recognize pesticidal molecules with product potential and activity as good as synthetic chemicals. We know how to develop and market bio-based pesticides in specialty markets; we have extensive and unique knowledge of the market and competition. We are experienced at creating a company culture that results in exceptional and sustained productivity, creativity, motivation and commitment by employees.

**Management team:** AgraQuest has assembled a management team experienced in pesticide, biopesticides and agricultural biotechnology business, research and development, marketing management and finance.

**Pamela G. Marrone, PhD, President/CEO**. Dr. Marrone left Novo Nordisk in January 1995 to start up AgraQuest. Under her tenure as president of Novo’s subsidiary, Entotech, Inc., which she built from the ground up the company, extended its Bt product line into three new crop segments, brought a Bt product two new Bt product formulations and a new gypsy moth virus product formulation to the market. In addition, Entotech found six novel pesticidal natural products, including a novel Bt enhancer (now on the commercial track). And has filed or pending 20 patent applications. Dr. Marrone wrote and implemented marketing plans and developed a new approach to generating revenue from biopesticides which is now the flagship strategy of the division. Prior to Novo Nordisk, Dr. Marrone worked for Monsanto Agricultural Company (1983-1990). Her Insect Biology group led pioneering projects in natural product and genetically engineered microbial pesticides and Bt transgenic crops (to be on the market in 1996)

**Ralph Sinibaldi, Vice President of Research and Development.** Dr Sinibaldi worked for Sandoz Agro. Inc., from 1982-1994 and was most recently Associate Research Director and Project manager, where he coordinated two major products on crop transformation and regulation to gene expression.

**Duane Ewing, Vice President of New Business and Product Development.** Duane Ewing has 13 years of management experience and a total of 17 years of experience in agriculture-related industries. As one of the first employees of Pan-Ag Labs. Inc. (1981), Mr. Ewing played a crucial role in Pan-Ag’s growth from $120,000 to almost $6 million annually in roles as Director of Fields Research, Director of Business Development, Vice President and de facto President during the owner’s absence.

**Bruce Holm CPA, Chief Financial Officer.** Bruce Holm has over 30 years of accounting experience. For 16 (1971 – 1987) he was Corporate Controller for Zoecon Corporation, where he was responsible for financial reporting in six SEC filings. Following Zoecon (1987 – 1991), he was employed by California Energy Company, Inc., as Corporate Controller and Joint Venture Controller.

**Financial summary and amount and structure of proposed financing:** AgraQuest requires start-up funding in the first full year of approximately $1.1 million for equipment, $2.5 million for operations and $2.9 million for cash reserves. *First-round financing of $2.5 million will allow us to identify our first commercial product candidate from our own R and D and to develop an externally acquired product.* The following two years are expected to require approximately $11.4 million for operating expenses, $5.8 million funded by sales of research services and molecules and product sales, leaving a net operations requirement of $5.1 million. Also, approximately $11.4 million is projected for equipment and improvements purchases and $0.8 million is required for cash reserves.

A public offering is projected to occur early in year five, with a target of $20 million. We are confident that AgraQuest can, by year three, develop a pipeline that subsequently generates 5-10 new natural products per year. Our novel natural product portfolio will specifically include two for corn rootworm (to be sold), one for sucking insects, one fungicide, one nematicide and one herbicide (to be sold).

The business projects a profit in year five and approximately $40 million in sales for molecules, services and products in year seven.

**Projected capital requirements: ($thousands)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Year end June 30:** | **1996** | **1997** | **1998** | **1999** |
| Operating expenditures and interest | $2500 | $4700 | $6700 | $9800 |
| Equipment and furniture | 1100 | 500 | 600 | 400 |
| Cash reserves buildup | 2900 |  | 1300 |  |
| Total | $6500 | $5200 | $8600 | $10200 |

**Projected funding:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Revenue from contract screening, molecule and product sales and government grants | $200 | $1800 | $4000 | $7500 |
| Equity financing | 5200 | 2600 | 4300 |  |
| Capital lease and/or bank financing of equipment, net of repayment | 1100 | 300 | 300 |  |
| Cash reserves usage  Total | $6500 | $5200 | $8600 | $10200 |

**Status of the company:** AgraQuest was incorporated in the state of Delaware in January 1995. The company is in the process of completing seed financing (approximately $200,000) which is being used for starting the microbial library and pest colonies. Also, we expect to obtain one product candidate from outside the company and secure at least one corporate collaboration