



TOUR COMPLETION REPORT

MTM Productivity Study Tour Program, USA

Agricultural Equipment Group

from

Kharkiv, Ukraine

September 08 - 28, 2003

USAID Grant #121-G-00-99-00728-00

Center for Economic Initiatives (CEI)

Phone: 513-831-6741

E-Mail: lcole@ukrainebiz.com

Prepared by: Dr. Belal U. Siddique

Table of Contents

1.0	Executive Overview	3
2.0	Introduction	5
3.0	Summary Evaluation of Participating Team	6
4.0	Miscellaneous Topics / Comments	6
5.0	Summary Conclusion / Positive Findings of the Project	6
6.0	Recommended Tour Program Improvements	7
7.0	Summary Description of Main Program Activities	7
8.0	Participants	24
9.0	Inputs Provided by Advisors	24
10.0	Criteria for Host Enterprise Selection	24
11.0	American Host Enterprises	25
12.0	Other Visits	27
13.0	Problems Encountered / Corrective Measures Taken	27
14.0	Evaluation by Tour Members	28
15.0	Recommended Short Term Measures for Deeper Tour Impact	46
16.0	Logistics	46
17.0	Participating CEI and Other Advisors	47

APPENDIX

Brief Description of Participant Companies	48
--	----

Agricultural Equipment Study Tour

1.0 EXECUTIVE OVERVIEW

This Management, Technology and Marketing (MTM) Productivity Study Tour program for Kharkiv, Ukraine was the last of four study tours for fiscal year 2003. This report describes Tour for the agricultural equipment industry sub-sector.

The purpose of the program is to give rise to a rapid and visible increase in living standards for the Ukrainian population as a whole by introducing key Ukrainian managers in key industrial sub-sectors to modern management, technology and marketing methods in the U.S. The Center for Economic Initiatives (CEI) selected four agricultural sub-sectors (Grain; Livestock and Dairy; Aquaculture and Agricultural Machinery) in order to introduce the benefits of this Marshall Plan type technical assistance program to Ukraine. All of these sub-sectors produce products that are basic to the needs of the Ukrainian population.

The major achievements of the program for the Ukrainian companies were:

1. New and modified products were identified that can easily be added to existing lines without significant investment;
2. An awareness and appreciation of new management techniques;
3. A greater appreciation of the role of advertising, marketing, merchandising and distribution;
4. New products and equipment they can purchase from the U.S.
5. A greater openness and awareness of changes they can make in their own firms and industries.

The study tour group included 13 high-level industry participants. Under the direction of the Tour Director, the group of 13 visited 18 organizations over a five-state area. The size of the group was economically most efficient. It would have been difficult to arrange visits for a group of 20 or more, while a smaller group would have increased the cost per participant. Due to budget limitations, the tour area was restricted to Ohio, Indiana, Illinois, Iowa and Kentucky. This was quite adequate for agricultural equipment industries.

The sites visited were carefully selected to meet the diverse needs of the group. Since the tour group represented different sizes of businesses and profile, each participant visited some plants that were within their area of interest. Moreover, there was much to be learned on every visit since management, marketing and distribution were common to all.

The host company determined the length of each visit. In almost all cases, the visits were scheduled to last three hours and were planned for the morning or afternoon. At each site there was a short introduction by management followed by a tour of the facilities. A question and answer period followed. In almost all cases, this was an extremely lively session and extended far beyond the initial schedule. The U.S. hosts were extremely generous with their time and information. Were it not for the need to maintain schedules, many visits would have been significantly longer. The enthusiasm of the participants rubbed off on the host companies and many offered to host future programs.

During their stay in the U.S., the group visited various agricultural equipment manufacturing plants of various sizes. In addition, they heard lectures from experts on various subjects. A

description of the individual host organizations is included in this report. As a result, the participants were able to get a very broad view of their industry.

The length of the tour, 20 days, appeared to be just about right. Time was needed for the new concepts to be fully understood and appreciated. The participants would probably not have been able to be away for a longer period of time.

Just as previous tours, when the group first arrived in the U.S., they had various fixed ideas about conducting their business. Although the participants were looking for new ideas, they were not necessarily open to new ideas. By the end of the tour, this attitude had completely changed. Most were eager to return and try out new ideas and products. The evolution in thinking was remarkable.

One of the frequently asked questions was “How do the Americans make the products at such a low cost?” Almost every host company discussed the importance of increased volume to drive down costs. This implied a greater need for effective marketing and for specialization. Both were exactly the opposite of the business thinking in Ukraine where there is little advertising and each firm struggles to diversify into as many different product lines and even different industries.

A surprising degree of bonding took place between the tour members. At the conclusion of the tour most agreed to meet again and possibly to form an association. Several participants were exploring various business arrangements; not only among themselves, but with the U.S. companies they visited.

Some of the participants expressed serious interest in American products and reproducing similar equipment back home. The Tour Consultant has agreed to facilitate communications between Ukraine and the American companies.

At the conclusion of the study tour the group was interviewed in depth to record what they had learned and to measure the potential impact of the tour on their individual firms. CEI was pleased to learn that all had concrete plans to introduce productivity improvements to reduce their costs of production, add new products to their lines and institute management changes. These findings are recorded in the Evaluation by Tour Members included in this report.

This Marshall Plan type equipment study tour was deemed a great success by all the participants and by CEI. Only by seeing for them-selves were these industry leaders able to learn new techniques and discover new products they could apply or reproduce back in their firms without the need of large new investments.

Agricultural Equipment Study Tour Program Narrative

2.0 INTRODUCTION

2.1 Overview

During the period of September 08 - 28, 2003 a group of 13 participants (11 men, 2 women) belonging to 12 different organizations related to agricultural equipment industries from the Kharkiv region visited Cincinnati, Ohio and other cities in Ohio, Indiana, Kentucky, Iowa and Illinois as a part of a 20 day study tour of their related industry. Vitaly Korostil was designated as Leader of the Ukrainian Group. USAID Grant #121-G-99-00728-00 made available to the CEI financed the tour. This was the last of four tours financed under this grant.

The tour was under the overall direction and leadership of Leland M. Cole, CEI's President. CEI appointed Tour Director Dr. Belal U. Siddique worked out the detailed program with host enterprises, selection arrangements, implementation and accompanying the group to various sites. Everyone felt the program was a great success.

2.2 Background

After W.W.II, America helped rebuild Western Europe through the Marshall Plan Program. European economies had been damaged and destroyed, the productivity of industry was low, and standards of living had plummeted. Through the Marshall Plan Program, not only did the US provide grain, steel and other essential raw materials, but also provided technical assistance on a large scale. More than 24,000 Europeans visited the US to learn about the modern ways in which industry operated.

The former Soviet Union (FSU), including Ukraine, today suffers from a scarcity of cost-oriented management and marketing capabilities. Managers focus on production and new equipment, rather than on market-oriented tasks. It is essential that Ukrainian management understand that marketing and productivity enhancements are central to the improvement of their living standards and availability of low-cost consumer goods. The Center for Economic Initiatives, (CEI) based in Cincinnati, applied for and received a grant from USAID to bring high level managers from the agricultural equipment industry of the Kharkiv region in Ukraine to the US for training. This program is similar to the original Marshall Plan Technical Assistance Program.

The total funded program will consist of four tour groups. The first tour was for the Grain sub-sector. The second tour was for Aqua-culture, the third was for Livestock and Dairy and the fourth was in Agricultural Equipment manufacturing.

Most participating managers have never been outside the former Soviet Union (FSU) and have virtually no experience with the workings of a market economy. The task was to help them learn new techniques that they could re-apply in Ukraine. Towards that end, CEI arranged a program that took the Ukrainian managers to processing plants, suppliers, government agencies and associations in Ohio, Indiana, Kentucky, Iowa and Illinois. These are agriculturally and industrially developed states with good food processing and agro-machinery industries from which to select suitable host organizations.

During their visits to these US organizations, the Ukrainians are able to learn improved techniques in production, marketing, and management. These skills will make the Ukrainian companies more

responsive to the needs of the Ukrainian domestic market, and more attractive for trade and investment with U.S. and other foreign enterprises.

2.3 Program Implementation

The initial study tour group visited 18 facilities of various organizations attended 3 seminars and various social functions spread over 11 cities/towns located in 5 states. We could not have been more pleased with the reception and hospitality given by host organizations. High-level U.S. officials made themselves available for extensive discussions and were genuinely interested in providing study tour members with all the information requested. Several had done independent research on Ukraine before arrival of the group.

3.0 SUMMARY EVALUATION OF PARTICIPATING TEAM

Although from diversified industry backgrounds, everyone picked up significant positive experiences from the tour. It was an active tour group with a voracious appetite for learning new things. At times, the group was late for the next appointment because question and answer sessions were active and lengthy. Sometimes 2-3 hours per plant visit was not enough time.

In general, tour members were cooperative and positive minded. They participated actively in group discussions and asked a great many good questions not only about the industry but also about the U.S. in general. They took notes, and an enormous amount of photographs and material back home. Initially, we had a few skeptics as usual, but by the end of the tour they were genuinely converted to true optimists. The total experience of seeing American industry and culture close-up over a period of 20 days made a significant difference too many members' thought processes and perception versus what they had earlier heard about America.

4.0 MISCELLANEOUS TOPICS / COMMENTS

- 4.1 The tour group had excellent interaction with the Tour Director and other CEI members. Information was provided to the maximum on all possible topics.
- 4.2 In most of the plants the group visited, technology was better than that used in Ukraine. Major differences were the methodology, management, organization and the culture of running an enterprise.
- 4.3 In a related industry, many members thought their heating costs, energy waste and loss were higher than the U.S. average.
- 4.5 Formal Training Certificates were handed out to all participants upon completion of the tour at the final dinner reception.
- 4.6 The participants were reminded that after their return to Ukraine, CEI would be pleased to answer questions and gather additional information they may request. It was suggested that e-mail would be the best way to communicate between the two countries.
- 4.7 The tour participants brought a number of gifts from Ukraine that they gave to host organizations, consultants and others.

5.0 SUMMARY CONCLUSION / POSITIVE FINDINGS OF THE PROJECT

Judging from the comments of tour participants, the experience was extremely positive and worthwhile. Many new ideas for replication were gained, not only in production, but in marketing, distribution and administration as well. This will, CEI believes, help lift the fortunes of these companies who must operate in a very difficult Ukrainian economic environment. This can only help to increase the living standards of the Ukrainian population.

We were also greatly encouraged by the bonding that took place between tour members who found they could trust one another. There appears to be a genuine interest in working together in the future. They plan to establish an association, and we believe this organization can have a beneficial effect on the entire industry.

A key objective of the program is the dissemination within Ukraine of the information learned. CEI stressed this throughout the tour, and we believe tour participants are truly dedicated to seeing this come about. We will follow-up during the post-tour visit to Kharkiv of CEI representation.

6.0 PARTICIPANT SUGGESTED TOUR PROGRAM IMPROVEMENTS

- 6.1 2-3 types of professionals from each industry category should be included: such as technology, marketing, management etc. (Some participants suggested that fewer professionals be included. Others felt the balance was just right.)
- 6.2 To affect any policy level change in Ukrainian agricultural equipment manufacturing industry, oblast level officials should be exposed to this type of program.
- 6.3 A group consisting of distributors and transportation specialists could be organized.
- 6.4 Internships for management, marketing, and advertising students from Kharkiv University and other Business Schools could be organized.
- 6.5 A program could be undertaken to help develop packaging experts in Ukraine.

7.0 SUMMARY DESCRIPTION OF MAIN PROGRAM ACTIVITIES

The following comments provide additional information on each of the activities and organizations visited.

Wednesday, September 10, 2003

RA Jones, Covington, Kentucky

Presently, the company is owned by IWKA from Germany. This company was started in 1905 by a dentist and today provides innovative packaging solutions. They have shipped more than 8,000 machines and 300 systems so far. Their customers are the top 100 consumer products companies in food, beverages, pharmaceutical and personal products, auto parts, communications and electronics. They provide high speed packing line manufacturing operations with 450 employees who speak 15 different languages. The facility covers an area of 33 acres with 233,000 sq.ft. of office and manufacturing space. R& D budget is around \$1.8 million.

The company designs and manufactures several kinds of packaging machinery - pouching, wrapping, cartooning, display packing and palletizing. Their machines are used in the food, beverage, pharmaceutical, personal products, electronics, auto parts and many other industries. Jones has manufactured machines for many of the world's largest companies and has shipped and installed machines all over the world.

Jones is well known for the long term quality and service support it provides. The company is continually broadening the scope of its products and services to improve the packaging productivity and competitiveness of its customers. The company offers total packaging solutions based on innovative concepts. They use servo mechanism technology and make extensive use of robotics. They make high speed carton and packaging equipment. Based on the client's requirements, they can manufacture and custom build any equipment for carton packaging. Their services range from planning and design, to the integration of packaging lines, to after-sale

services and technical support. Their plant is very sophisticated with ultra modern laser precision metal cutters.

The company has \$80 million in annual sales and has a 6-8% profit margin.

Learning for the Ukrainians: The group was fascinated by this state of the art machine building plant. But the cost of buying a new packaging line is rather cost prohibitive for them at this point in time. They hope that when the economy turns around in Ukraine they could perhaps afford this equipment in the future.

LaRosa Frozen Pizza, Cincinnati, Ohio

This is a very clean and modern frozen pizza plant that supplies many local area pizza facilities. The plant and modern equipment fascinated the Ukrainians. The facility has expanded a lot and now has two major continuous process conveyor spiral rack chambers. One chamber is steam heated for dough maturing and the other deep frozen for matured dough to freeze and pack. The dough mixing is a batch process while the pizza crust manufacturing is continuous process. Apart from the technological side, the very idea of frozen dough transport appealed to the group. The group asked many questions at this facility.

Learning for the Ukrainians: It was concluded that stainless steel sieving conveyer belts are now extremely cost prohibitive in Ukraine. As a result, the spiral chamber racks could not be made at a reasonable price. Hence the group felt that batch technology was now more appropriate in Ukraine.

Thursday, September 11, 2003

Cincinnati Incorporated

Cincinnati Incorporated is a technologically advanced manufacturer of metalworking machinery with a reputation for high quality and dependable service, since 1898. For over a century, Cincinnati Incorporated has furnished machines to customers around the world. Rugged, durable machinery backed by dependable parts-and-service support have made most customers into repeat customers.

Cincinnati Incorporated manufactures laser-cutting systems, press brakes, shears, gap-frame presses and powdered metal compacting and sizing presses. Major benefits to the user include accuracy, productivity and reliability. Cincinnati Incorporated maintains a modern industrial facility where product development, manufacturing, sales and support functions combine to assure complete customer service and satisfaction.

An experienced staff of engineers conducts research and development in new areas of metalworking technology, as well as ongoing improvement programs for current products.

Learning for the Ukrainians: Customers may visit the Customer Productivity Center to watch parts being cut and discuss unique applications with product specialists to verify production efficiency and savings. The Customer Productivity Center demonstrates today's latest shearing, forming, stamping and laser cutting technologies.

Friday, September 12, 2003

Dupps Co., Germantown, Ohio

The Dupps Company is privately held. The company is a world-class competitor in the design and manufacture of evaporation and liquid/solid separation systems and equipment with a significant market share in each segment. The Dupps Company is in the business of designing, manufacturing, installing and servicing equipment and systems to meet the evaporation and liquid/solid separation needs of their industrial market segments. They have a very efficient manufacturing base.

The company can handle specific process engineering needs by providing a complete turnkey processing facility or a retrofitted upgrade to existing equipment. Using computer assisted engineering, design, and production planning; they streamline the process of taking the product or system needed from concept to equipment delivery.

The company constructs equipment in their modern plant with manufacturing operations that include machining, fabrication, assembly and a complete electrical control shop. Advanced manufacturing equipment at Dupps ranges from: CNC milling and drilling, turning and boring machines to automatic flame and plasma cutting equipment, hydraulic shears and press brakes. It is all backed by a lifting capacity of up to 400 tons plus several types of welding including arc, MIG, TIG, and submerged arc systems along with powered welding gantries. Computerized production and inventory control keeps up-to-the minute track of costs, work in progress and compliance with delivery schedules to help the job completed on time and on budget.

To help assure timely delivery of Dupps products, the company has its own railroad siding that reaches right into the plant, with own locomotive and rail cars and several miles of track to the main line. To ensure fast, dependable service and minimal downtime, the company offers a full time staff of highly trained professionals, a fleet of trucks offering regular part shuttles to many North American customers and an enormous standard parts inventory monitored by computer and shipped within 24 hours to any location in the world.

The products offered are: New Quadpass Dryer, Material Handling Equipment, Size Reduction Equipment, Cookers/Dryers, Hydrolyzers, Evaporator System, Screw Presses, Process Control, Continuous Cocoa Butter System and Mechanical Catch Basin.

Learning for the Ukrainians: The Dupps Company designs, manufactures, installs and services process equipment and systems to convert animal and plant materials into finished products. Many processes require the separation of a liquid (oil, water, fat, solvent etc.) from some form of solid. The company can do turnkey projects built around new technology or new uses of established technology. These involve: Protein Recycling (Rendering), Processed Forest Products Drying, Paper Sludge De-watering, Paper Recycling, Oilseed Processing, Grain Co-Products Recycling, Cocoa Butter Production, Solvent Recycling and Food Grade Processing.

Saturday, September 13, 2003

Planet Products Corporation, Cincinnati, OH

Carter Randolph – President of Planet Products, along with his executives, received the group. Our guests were impressed by Mr. Randolph's excellent presentation, which was written in Ukrainian. The group was taken around the company, shown different machines and products, and given explanations of the various services they provide to clients.

Known for over 50 years as an innovator in precision equipment design, Planet Products has focused on its customers needs with efficient solutions where design and build of unique systems are the answer. With core competencies in food, medical and consumer products handling as well as precision manufacturing, Planet Products has been relied upon in select industries to provide reliable special design equipment and systems integration, representing the best of class as well as overall value. Most automatic machines are expensive, specialized high-end premium products. The company custom builds products for individual buyers, fulfilling their special needs. Many projects and clients are considered confidential, and many products are developed jointly as a separate project with the client.

Products and Services Offered by the Company:

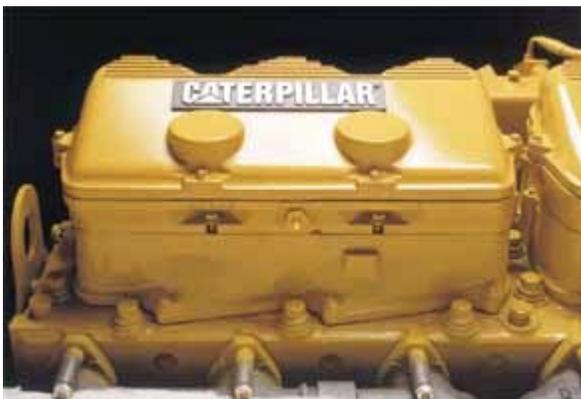
1. Food System Automation
2. Hot Dog Loaders
3. Sausage Loaders
4. Food Tray Sealers
5. Medical Tray Sealers
6. Tray Sealing Automations
7. Thermo-formers
8. Precision Machining (Robotics)

Learning for the Ukrainians: This is a mid-sized company, housed in an industrial park in Blue Ash area of Cincinnati, and has 54,000 sq. ft. floor space could be the very example of many small business in Ukraine. The company has sophisticated in house mechanical and electrical engineering capability. There are 18 trained people with expertise on CAD and 10 people with virtual 3D work. There are 7 CNC (computerized numerical controlled) lathe machines in operation.

Monday, September 15, 2003

Caterpillar Engine Division, Peoria, IL

The Ukrainian group visited the Caterpillar Engine Division in Peoria, IL. The history of Caterpillar and Caterpillar Engine Division is a tribute to the people who wrote it with their toil, ideas and dreams. The companies that would later merge to form the Caterpillar that today exists, started by producing steam engines for agricultural use. It was only through the vision and foresight of people like Benjamin Holt, C. L. Best and Art Rosen that has enabled Caterpillar to stay on the cutting edge of diesel and gas power. Caterpillar Engine Division continues to be in innovation and technology leadership.



Caterpillar is the world's largest manufacturer of medium speed engines, as well as one of the world's largest manufacturers of high speed diesel engines, with ratings available from 54 to 13,600 hp (40 to 10,000 kW). Caterpillar is also a major supplier of HD diesel fuel systems, including the revolutionary HEUI™ fuel system, and the world's largest producer of HD natural gas engines.

Caterpillar engines and engine systems provide

power to the world. These engines provide power to trucks, ships and boats, for its own construction and mining machines, and much more. Electrical power systems supply both primary and standby power for a variety of uses - like off-shore oil rigs, huge mines in remote deserts or mountain ranges, entire communities in areas not close to a utility power grid, hospitals, schools, factories, airports and office buildings. With over 500 engines, Caterpillar offers more choices than everyone else put together.

Learning for the Ukrainians: The group had the opportunity to see the foundry work and also saw a live demonstration at their show room of various earths moving equipment.

Tuesday, September 16, 2003

John Deere, Moline, Illinois

For the Ukrainians who know the John Deere name so well, the visit to the John Deere facility at Moline was a pilgrimage to the center of the world's agro machinery operation. The change from hand to animal to modern power farming methods in American agriculture is one of the most far-reaching transformations in human history. Mechanization has taken the drudgery out of farming and brought abundance never before known in any land or era. And it has released manpower from the farm to make possible America's great industrial progress. Today, less than 2% of the population farms the land, and that is about 1/3rd the number of rural dwellers as there were in 1837. Yet, these same farmers not only produce sufficient food and fiber for a U.S. population of about 250 million, but also provide a generous surplus for export. This is truly a miracle of the 20th century. It is a tribute not only to American farmer, but also to the scientists, inventors and industrial workers who have contributed so much to the growth of this nation. The John Deere brand, its name and trademarks in agricultural farm equipment, is one of the oldest and most recognized throughout the world. It has been synonymous with high-quality, highly valued equipment and solutions for over 164 years.

Key products manufactured are: a full line of farm machinery, including four-wheel-drive, row-crop and utility tractors; combines and sugarcane harvesters; cotton pickers; and seeding, tillage and hay equipment. Major customers are farmers around the world, including commercial, or custom, harvesting and baling operations.

The Ukrainian group was shown two operations: John Deere Seeding Group (Production of Max-Emerge Planters, Flexi Planters and Hydraulic Cylinders and Fasteners) in Moline and also John Deere Harvester Works (Manufactures of Maximizer Combines and Associated Headers) in East Moline. The tour at both plants was an outstanding display of engineering excellence. Because the plant was such a humongous operation at the Harvester Works, the tour was conducted on trolley cars. The Ukrainians saw for them selves how the newest model of Harvester Combine is manufactured from its beginning to the final assembly on the line. This was an experience the Ukrainians would never forget. This visit was time well spent.

Learning for the Ukrainians: Exposure to the largest manufacturer of effective and productive agricultural air pressured seeding and harvester equipment, concept of a new kind of marketing involving the farmer's participation in the production facility.

Kinze Manufacturing Inc. Williamsburg, IA.

Kinze is a famous manufacturer of precision row-crop planters, large auger, conveyor grain wagons, and other agro-machines. Kinze has sold to Ukraine many of their planters and Ukrainians have high opinions of their products.

The group was told that Kinze is a relatively new company. Jon Kinzenbaw, the company's owner and President, founded the business in 1965 in nearby Ladora, Iowa, as a welding, repair and custom metal fabricating shop. His farm background, understanding of farmers' needs, and inventiveness soon led him to build several custom machines for area farmers and agri-businesses. 1975 represented a milestone in Kinze's growth when the present plant site was purchased. A 1998 building expansion increased the total square footage to nearly 27,000 square feet to allow further growth of this business.

The Company focuses on the needs of today's farmers. Jon Kinzenbaw's philosophy of providing the most value to the customer through product quality and reliability drives every decision in the company. It remains on the leading edge of product development to fit changing cropping practices ranging from conventional tillage to high residue management, including no-till and ridge-till; changing chemical and fertilizer application systems; and mechanical cultivation alternatives to chemical weed control.



Working in conjunction with DMI, development began in 1972 on a 13-bottom plow that would flex in the middle. To demonstrate this new design, Kinze custom-built a 4-wheel drive tractor powered by twin Detroit Diesel engines that produced 600 HP. The tractor and plow were completed just in time to demonstrate at the Farm Progress Show in the fall of

1974. The specially built tractor, weighing over 20 tons, became known as “Big Blue” and continued to draw large crowds at farm shows and field demonstrations through 1976.

Kinze introduced the exclusive Brush-Type Seed Meter in late 1990. This patented meter provided precise metering of soybeans, sorghum and cotton seeds as an alternative to plates, air or vacuum metering systems, or seed cups like those used on grain drills. The meter makes possible the accurate singular spacing of these crops in combination with the precision depth control of a planter row unit, which cannot be achieved with seed openers on drills.

By 1980, Kinze had become a totally integrated planter manufacturer with the addition of planter row units to its unique frame designs. In the same year, the first Double Frame planters were introduced, providing the capability of mounting a solid row of planter units at 15 inch row spacing across the rear bar of the planter.

The current Kinze blue paint color, used previously on grain wagons and anhydrous toolbars, was introduced on planters in 1982 and identifying the company's products across North America and around the world.



Another Kinze innovation came in 1983, when the company began building its unique, patented “push” planter units. By mounting these units on the front bar of a Double Frame planter, the farmer now had the capability of “interplant” or “split row” planting. This planting system has become increasingly popular in double-cropping areas and as a precision planting alternative to grain drills for narrow row

soybeans. A producer who plants corn or other crops in 30, 36 or 38 inch rows can quickly convert to 15, 18 or 19 inch rows for soybeans by enabling the “push” units on the front frame of the planter.



Production of the Model 450C Grain Conveyor Wagon began in 1991. It featured an exclusive, hydraulically driven unloading conveyor with a low profile, hydraulic fold for transport. The conveyor utilizes steel backed polyethylene paddles mounted on industrial grade conveyor chain to swiftly unload grain with minimal damage. Unloading speeds of up to 175 bushel per minute mean that the 490-bushel wagon can unload in less than three minutes. In 1995, a shortened Sof-Trak option with 24 inch rubber tracks was introduced for the Model 450C. Introduced in 1992 was the 1500 Conservation Cultivator in rigid models from 4 rows narrow (30 inch) through 8 rows wide (36, 38, 40 inch). The Model 1500 is aimed at high residue cropping systems and offers mulch-till, ridge-till and no-till capabilities. In 1993, a 10 row narrow rigid model, and folding models from 8 rows narrow through 16 rows narrow were added.

A 1994 addition to the Kinze line of technologically advanced planters was the Model 2700 Front Folding Planter. First available in a 24 row narrow (30 inch) size, the Model 2700 goes quickly from 60 foot operating width to 14 foot transport width and back again, with the entire folding/unfolding sequence controlled from the tractor seat. In 1996, two new sizes of the Model 2700 planter with operating widths of 40 ft. were introduced; a 16 row narrow (30 inch) and 24 row for ultra-narrow 20 inch. In 1997, the 36-row 20-inch version was introduced on the same frame that carries the 24-row 30-inch size.

Four stack folding planters – 8 rows wide, 12 rows narrow, 12 rows wide and 16 rows narrow– were introduced in July of 1995 as additions to the 1996 line of Kinze Model 2100 3 Point Mounted Planters. These planters offer the innovative Kinze spring-loaded contact tire drive system, optional point row clutch capability, rigid or optional wing flex operation, telescoping u-joint drive shafts/couplers that do not require uncoupling for folding, and a competitively superior transport configuration.

In 1999, Kinze also entered the world of hydraulic cylinder manufacturing. This venture included the purchase or fabrication and installation of all equipment required to produce, assemble and test industrial-quality hydraulic cylinders, plus the reassignment and training of existing employees to develop and initiate various new production processes.

Learning for the Ukrainians: Exposure to the mid-size manufacturer of effective and productive value priced agricultural seeding equipment, which the Ukrainians can afford and could be adapted to the current Ukrainian tractors.

Wednesday, September 17, 2003

Vermeer Manufacturing Company

The Vermeer Manufacturing Company's spirit of innovation enabled it to grow from a one-person operation in Iowa, to an international organization with over 3000 employees. Vermeer celebrated its 50th anniversary in 1998.

One of Gary Vermeer's first inventions was a modified farm wagon with a mechanical hoist. The demand that followed led Gary to establish Vermeer Manufacturing Company in Pella, Iowa, in 1948. Since then, the company's remarkable history has included a number of other "firsts," such as the first tree spade.

In 1957 Vermeer entered the agricultural field. This entry was followed by the introduction of the world's first large, round hay baler in 1971.

The Vermeer NAVIGATOR[®] horizontal directional drilling machine, introduced in 1991, has been instrumental in laying cables for the world's information superhighway.

Vermeer successfully designs and manufactures quality equipment that enables people on job sites around the world to work more efficiently.

In addition to traditional product lines of trenchers, horizontal directional drills, and environmental products, Vermeer has an array of new and innovative products.

When it comes to underground horizontal directional drilling equipment, more people depend on Vermeer NAVIGATOR[®] directional units than on any other line of trench-less equipment. Vermeer also provides a full line of track and utility trenchers that are specially designed for digging in rock or dirt. Powerful concrete cutters, rock wheels and trench compactors complete the underground equipment line. Since the introduction of the first stump cutter in 1957, the Vermeer environmental line of brush chippers, stump cutters, tree spades and tub grinders has become well-known and trusted equipment. The Vermeer agricultural line includes hay balers, silage wrappers, rotary hay shredders, bale busters, economy bale carriers, and mowers.

Learning for the Ukrainians: The Ukrainians saw just-in-time production principles and various other agricultural equipment like hay balers.

Thursday, September 18, 2003

Caterpillar Heavy Earth Moving Equipment Division, Aurora, IL

Mining and agriculture are demanding businesses. Mining challenges require more than new iron and innovative technology.

Mining and Earthmoving Technology Systems work to develop advanced technology products. These products include radio data communications, machine monitoring, diagnostics, job and business management software, and machine control - all designed to lower customer costs, improve efficiency, and increase productivity in mining and heavy equipment operations.

Caterpillar has the best mining equipment in the industry and was able to set the standard in the mining industry. Products offered are everything from trucks and scrapers to shovels and motor graders. The Caterpillar 797 large mining truck has a payload capacity of 360 tons (326 metric

tons). Caterpillar provides dependable equipment to perform, day in and day out, tough enough to cope with the severe working conditions of the mining industry.

The Caterpillar equipment product line consists of more than 300 machines. World-class service and support is provided by Caterpillar dealers worldwide through more than 1,500 facilities in 200 countries.



Wheel loaders, hydraulic shovels, excavators, rigid-frame trucks, articulated trucks, scrapers, track-type tractors, carry dozers and a full complement of support machines - all designed to work together efficiently.

From control systems that help operators work like veterans to computer-aided earthmoving tools that help to improve profitability, Caterpillar mining

machines gives solutions to the operational challenges daily.

Caterpillar offers a complete line of loading, hauling and support tools for mining. Some of the key models in the product line are:

793C Truck

Introduced in 1991, the Cat 793 quickly became the industry's best-selling large truck. Today more than 500 are at work in mines around the world. Improving the design over the past five years and new 793C Mining Truck were introduced. The new model is built on the success of its predecessors, but offers many improvements that lower cost per ton.

5230 Hydraulic Shovel

These are 150-metric ton and larger size class. The 5230, is a 315-metric ton model, recognized throughout the world as a consistent producer and a reliable loading tool. Built to dig and built to last, it maximizes productivity while lowering cost per ton.

992G Wheel Loader

Caterpillar will revolutionize the wheel loader industry with the introduction of the 992G. The new machine will replace the 992D, the world's best-selling loader in its size class. When the 992G emerges from its development program, it will outperform, out produce and outlast its predecessor, and help move more material at a lower cost per ton.

D11R CD Carrydozer

The D11R Carry dozer uses advanced technology to improve operator performance and increase productivity. The new machine moves material at a lower cost per yard than any proven Track-Type Tractor. It also surpasses most competing earthmoving systems on a cost-per-yard basis. Tomorrow's technology combined with proven features from the Caterpillar® Track-Type Tractor line make the D11R Carry dozer a valuable solution for your stripping and reclamation challenges.

24H Motor Grader

Big trucks can destroy haul roads. And bad haul roads can devastate your bottom line. When haul road maintenance slips, production drops and the cost of tires, fuel and repairs skyrockets. Keeping haul roads in great shape will be easier than ever with the new Cat® 24H Motor Grader. Designed to work with 150-ton (136-tonne) and larger mining trucks, the 24H features a wide blade and powerful cutting forces. It works quickly and efficiently to supporting large mining systems and reduce hauling costs.

Caterpillar Elphinstone



Underground miners expect tough machines, new technology, and exceptional support. Caterpillar Elphinstone Pty Ltd, a joint venture between Caterpillar Inc. and Dale B. Elphinstone Pty Ltd. The two companies have pooled strengths in research, engineering, manufacturing and product support. The result is a premium quality product line backed by an unmatched global support network.

Learning for the Ukrainians: Massive heavy equipment production line and manufacturing culture.

Friday, September 19, 2003

CM Associates, Tinley Park, IL

Three high-ranking company officials received the Ukrainian Appliance group: Bud Gray VP/GM. The company specializes in Product Identification Solutions for Appliance Manufacturers, HVAC, Lawn & Garden, Power and Hand Tools, Personal Care, Small Electrics, Consumer Electronics, and Automotive. They are a printing industry providing specialized labels, nameplates and identification products.

This visit was particularly important to the Ukrainians, introducing them to methods of improving product images using colorful and professionally designed company names and brands. This was the most important element to enhance marketable industrial goods and products and brand image to the clients.

Learning for the Ukrainians: The company identifies special requirements for various industries for their nameplates, labels, decals, and signs; and provide the necessary design, engineering, manufacturing and sales services. They have a creative computer assisted design center. The group was shown around all the printing and production facility.

Monday, September 22, 2003

Beard Industries, Frankfort, IN

Steven D. Curtis, Product and Marketing Manager along with corporate International Sales Manager Bruce Mitchell received the group. Beard Industries has been bought by CTB. Visit to Beard Industries located in Frankfort, IN was a unique addition to the tour program for the Grain group this year. Despite the fact that Ukraine had two consecutive bumper harvest but grain price was very low. One of the reasons for such low price is the lack of grain storage and conditioning facility for farming community. Lacking such facility at their own farm, most farmers are forced to sell the grain immediately after the harvest at a dictated low price by the grain dealers. Increasing storage and grain conditioning capability is a bargaining chip for the Ukrainian farmers. Beard Industries manufacture excellent grain drying equipment, which could be used in Ukraine.

Learning for the Ukrainians: Grain drying and conditioning machines are needed for Ukraine. The farmers know only very well that they can't upgrade their products with out dryers.

Tuesday, September 23, 2003

Chore-Time Brock (CTB) Manufacturing, Milford, IN

Corporate International Sales Manager Bruce Mitchell received the group. CTB Operations located in Milford, IN is the manufacturing operations for the Grain Silos made out of corrugated zinc alloy sheets, widely used in USA. Lately, some of these silos have been procured by some prosperous Ukrainian farms. Use of these silos for extended storage is a key marketing tool for the future Ukrainian farmers. The visit was a success helping Ukrainians organize and procure similar silos or produce similar low cost products back home.

Learning for the Ukrainians: Having storage silos are essential for Ukrainian farmers. The farmers know only very well that they can't have better bargaining capability with out some storage capability. Therefore, similar light weight storage silos as used in USA could well be built in various farms and would provide farmers an extra edge in grain marketing in Ukraine.

Wednesday, September 24, 2003

Stein Associates, Sundusky, Ohio

Stein Associate's parent company is FMC, a large corporation based in Chicago. They employ 15,600 people and have 104 production facilities in 26 countries.

In 1979, Stein opened its first Food Processing Technology Center to provide processors with a modern facility to test new food products and processing ideas without interfering with the plant production. The newly opened Food Processing Technology Center is a 30,000 sq. foot addition to the current Stein facility. It provides an opportunity for food processors, ingredient suppliers and equipment manufacturers to find solutions to production problems. By combining the efforts of FMC Food Technology subsidiaries like: DSI, Frigoscandia and Stein any toughest processing challenges can be mastered. Whether portioning, coating, frying, steaming, oven roasting or freezing - the company has the technology to produce new more products profitably. Many of today's convenience foods were at least partially conceived at the Stein Food Processing Technology Center.

Even before products are coated or cooked, there often sliced, marinated, injected, flattened, extruded, trumbled, ground, formed or portioned. A variety of food preparation equipment is available to condition the product prior to processing.

DSI Portioner accurately cuts meat, fish or poultry to size, shape or weight and can trim a specified amount of fat from meat or poultry. Batter and breading is the cornerstone of Stein's business.

Nobody knows more about coating poultry, seafood, meat or vegetables than Stein. Whether some one needs an 8 inch mini-line or a 40 inch triple pass system, Stein can simulate nearly any production application in the laboratory. It doesn't matter whether running flour or J-crumb, conventional batter or tempura, Stein can customize the coating room temperature to match the production environment.

TFF Fryer revolutionized fried food production. This fryer has a vertical fin heat exchanger that heats cooking oil quickly but without scorching. The vertical fins allow loose crumbs to fall through to the sediment removal system to keep the frying oil clean. After production the heat exchanger lifts itself from the fryer for better interior cleaning. Because the thermal fluid heating unit is remotely located, the frying area stays cooler and quieter. The Ukrainian group tasted products using various processes such as: *predust*, *batter*, *bread*, *fry* (Onion Rings, Mushrooms, Cauliflower, Pineapple Chunks, Apple Slices, Banana Slices) and *vacuum tumble marinate/JSO IV oven cook* (Buffalo Wings).

Tuesday, September 25, 2003

Toyota Motor MNA, Georgetown, KY

The Ukrainian group was received by William Taylor – the Special Tour Manager at Toyota Motor Manufacturing Kentucky (TMMK) Inc., at Georgetown, Kentucky. This is one of the finest automobile builders in the world. It was the ultimate dream tour of the group, seeing the highest quality manufacturing operation with 21st century concepts. The group at the visitors' center had pre and post visit briefings, where many of the concepts and terminologies used in Toyota's production facility were explained. Examples include **Kanban** – card information; **jidoka** – Autonomation; **shojinka** - flexible work force; **soikufu** - creative thinking and inventive ideas; and **Andon** - electric light board. Later, the group went out for an hour-long plant tour on a special trolley car.

The Toyota Camry, Avalon and Sienna, produced at Toyota Motor Manufacturing, Kentucky, Inc., are the results of the highest standards in the industry. Georgetown, which began production in 1988, is Toyota's largest production plant in North America, with investment over \$5 billion. This is the most ultra-modern manufacturing plant in the world, using the latest equipment, robots, human management and production skills. With two vehicle production lines and a power-train engine and axle facility, more than 7,700 team members build about 500,000 vehicles and nearly 400,000 engines each year.

The Toyota Camry, produced, at this facility, is the best-selling car of 1997, 1998, 1999 and 2000. Since 1991, Camry sales have risen steadily, with almost 423,000 sold in the United States in the year 2000. And it's not just the Camry that Americans have come to love: there were over 104,000 Avalons sold in the United States in 2000 alone. That same year over 103,000 Americans bought the Sienna, Toyota's groundbreaking minivan.

Exports

TMMK began building cars for export in 1989, sending 2,300 Camry sedans to Taiwan. Each year, exports have varied in number as market demand fluctuates in the United States and abroad. Today, TMMK is the sole source for Avalons and Siennas worldwide. TMMK was recognized in 1992, 1993 and 1994 by the Kentucky World Trade Center as the state's largest exporter, and continues to be one of the state's largest exporters. TMMK exports vehicles to Canada, Japan, Korea, China, the Middle East and Taiwan. The total dollar value of TMMK exports in 2000, including vehicles, engines and parts and components, was \$822,301,046. Below is a more detailed look at TMMK exports for this past year.

Some Historical Background

Three men were especially prominent in creating the Toyota Production System: Sakichi Toyoda - his son, Kiichiro Toyoda and a production engineer by the name of Taiichi Ohno.

Sakichi Toyoda, who founded the Toyota Group, was the inventor of automatic looms. He invented a loom in 1902 that would stop automatically if any of the threads snapped. His invention opened the way for automated loom-works, where a single operator could handle dozens of looms.

Sakichi's invention reduced defects and raised yields, since a loom would not go on producing imperfect fabric and using up thread after a problem occurred. The principle of designing equipment to stop automatically and call attention to problems immediately is crucial to the Toyota Production System. It is evident on every production line at Toyota and at other companies that use the system.

When the Toyota Group set up an automobile-manufacturing operation in the 1930s, Sakichi's son Kiichiro headed the new venture. Kiichiro traveled to the United States to study Henry Ford's system in operation. He returned with a strong grasp of Ford's conveyor system and an even stronger determination to adapt that system to the small production volumes of the Japanese market.

Kiichiro's solution was to provide the different processes in the assembly sequence with only the kinds and quantities of items that they needed and only when they needed them. Production and transport took place simultaneously and synchronously throughout the production sequence - inside and between all the processes. Kiichiro thus laid the groundwork for **Just-In-Time** production, and he gets credit for coining this term.

The man who did the most to structure the Toyota Production System as an integrated framework was Taiichi Ohno. In the late 1940's, Ohno - who later became an executive vice president at Toyota - was in charge of a machining shop. He experimented with various ways of setting up the equipment to produce needed items in a timely manner. But he got a whole new perspective on Just-In-Time production when he visited the United States in 1956.

Ohno went to the United States to visit automobile plants, but his most important U.S. discovery was the supermarket. Japan did not have many self-service stores yet, and Ohno was impressed. He marveled at the way customers chose exactly what they wanted and in the quantities that they wanted. And he admired the way the supermarkets supplied merchandise in a simple, efficient, and timely manner.

In later years, Ohno often described his production system in terms of the American supermarket. Each production line arrayed its diverse output for the following line to choose from, like merchandise on supermarket shelves. Each line became the customer for the preceding line. And each line became a supermarket for the following line. The following line would come and choose the items it needed and only those items. The preceding line would produce only the replacement items for the ones that the following line had selected.

This format was a pull system, driven by the needs of the following lines. It contrasted with conventional push systems, which were driven by the output of preceding lines. Ohno developed a number of tools for operating his production format in a systematic framework. The best known of those tools is the **Kanban system**, which provides for conveying information in and between processes on instruction cards.

The Toyota Production System - A Case Study of Creativity and Innovation in Automotive Engineering:

The Toyota Production System has been created from actual practices in the factories of Toyota. As a result it has the effective feature of emphasizing practical effects and actual practice over theoretical analysis. This system can play a great role in the task of improving the structure of companies worldwide, especially those of the automobile industry.

Forty years ago, Peter Drucker dubbed automobile manufacturing as the industry of industries, and today it is still the world's largest manufacturing activity. After World War I, Henry Ford and General Motors' Alfred Sloan moved world manufacture from centuries of craft production (led by European firms) into the age of mass production. Largely as a result, the United States soon dominated the world economy.

After World War II, Eiji Toyoda and Taiichi Ohno at the Toyota Motor Company in Japan pioneered the concept of Toyota Production System. The rise of Japan to its current economic pre-eminence quickly followed, as other companies and industries copied this remarkable, innovative system. Manufacturers around the world are now trying to implement this system, but they are encountering difficulties. The companies that first mastered this system were all headquartered in Japan. However, many Western companies now understand the Toyota Production System, and at least one is well along the path of introducing it. Superimposing this method on the existing mass-production systems causes great pain and disruption.

Toyota has made the necessary transition from mass production to this system. The global adaptation, as it inevitably spreads beyond the auto industry, will change everything in almost every industry: choices of customers, the nature of work, the fortune of companies and ultimately the fate of nations.

Toyota has combined the advantages of craft and mass production, while avoiding the high cost of the former and the rigidity of the latter. Toward this end, they employ teams of multi-skilled workers at all levels of the organization and use highly flexible and increasingly automated machines to produce volumes of products in an enormous variety.

The Toyota Production System is also defined as Lean Production because it uses less of everything compared with mass production - half the human effort in the factory, half the manufacturing space, half the investment in tools, and half the engineering hours to develop a new product in half the time. Also it requires keeping far less than half the needed inventory on site, resulting in many fewer defects, and producing a greater and ever growing variety of products.

Perhaps the most striking difference between mass production and the Toyota Production System lies in their ultimate objectives. Mass-producers set a limited goal for themselves - good enough, which translates into an acceptable number of defects, a maximum acceptable level of inventories, and a narrow range of standardized products. Lean producers on the other hand, set their sights explicitly on perfection.

Basic idea and Framework

The Toyota Production System is a technology of comprehensive production management that the Japanese invented a hundred years after opening up to the modern world. The basic idea of this

system is to maintain a continuous flow of products in factories in order to flexibly adapt to demand changes. The realization of such production flow is called Just-In-Time production, which means producing only necessary units in a necessary quantity at a necessary time. As a result, the excess inventories and the excess work force will be naturally diminished, thereby achieving the purposes of increased productivity and cost reduction.

The basic principle of Just-In-Time production is rational; that is, the Toyota Production System has been developed by steadily pursuing the orthodox way of production management. With the realization of this concept, unnecessary intermediate and finished product inventories would be eliminated. However, although cost reduction is the system's most important goal, it must achieve three other sub-goals in order to achieve its primary objective. They include:

1. **Quantity control**, which enables the system to adapt to daily and monthly fluctuations in demand in terms of quantities and variety.
2. **Quality assurance**, which assures that each process will supply only good units to the subsequent processes.
3. **Respect-for-humanity**, which must be cultivated while the system utilizes human resources to attain its cost objectives.

These three goals cannot exist independently or be achieved independently without influencing each other or the primary goal of cost reduction. All goals are output of the same system. With productivity as the ultimate purpose and guiding concept, the Toyota Production System strives to realize each of the goals for which it has been designed. The outputs or result side, as well as the inputs or constituent side of the production system are depicted.

Achieving two key concepts creates a continuous flow of production, or adapting to demand changes in quantities and variety, **Just-In-Time** and **Autonamation**. These two concepts are the pillars of the Toyota Production System.

The Just-In-Time concept basically means to produce the necessary units in the necessary quantities at the necessary time. Autonamation (Jidoka in Japanese) may be loosely interpreted as autonomous defects control. It supports Just-In-Time by never allowing defective units from the preceding process to flow into and disrupt a subsequent process. Two concepts also key to the Toyota Production System include Flexible Work Force (Shojinka in Japanese) which means varying the number of workers to demand changes, and Creative Thinking or inventive ideas (soikufu), or capitalizing on workers suggestions.

To realize these four concepts, Toyota has established the following systems and methods:

1. Kanban system to maintain Just-In-Time production
2. Production smoothing method to adapt to demand changes
3. Shortening of set-up time for reducing the production lead time
4. Standardization of operations to attain line balancing
5. Machine layout and the multi-function worker for flexible work force
6. Improvement activities by small groups and the suggestion system to reduce the work force and increase the worker's moral.
7. Visual control system to achieve the Autonamation concept
8. Functional Management system to promote company wide quality control.
9. Just-In-Time production

The idea of producing the necessary units in the necessary quantities at the necessary time is described by the short term Just-In-Time. The Just-In-Time concept means, for example, that in the process of assembling the parts to build a car, the necessary kind of sub-assemblies of the preceding processes should arrive at the product line at the time needed in the necessary quantities. If Just-In-Time is realized in the entire firm, then unnecessary inventories in the factory will be completely eliminated, making stores or warehouses unnecessary. The inventory carrying costs will be diminished, and the ratio of capital turnover will be increased.

However, to rely solely on the central planning approach, which instructs the production schedules to all processes simultaneously, it is very difficult to realize Just-In-Time in all the processes for a product like an automobile, which consists of thousands of parts. Therefore, in Toyota's system, it is necessary to look at the production flow conversely; in other words, the people of a certain process go to the preceding process to withdraw the necessary units in the necessary quantities at the necessary time. Then the preceding process has to produce only enough quantities of units to replace those that have been withdrawn.

Kanban System (Card Information)

Many people think the Toyota Production System is a Kanban system: this is incorrect. The Toyota Production System is a way to make products, whereas the Kanban system is the way to manage the Just-In-Time production method. In short, the Kanban system is an information system to harmoniously control the production quantities in every process. It is a tool to achieve Just-In-Time production. In this system what kind of units and how many units needed are written on a tag-like card called Kanban. The Kanban is sent to the people of the preceding process from the subsequent process. As a result, many processes in a plant are connected with each other. This connecting of processes in a factory allows for better control of necessary quantities for various products. The following supports the Kanban system:

1. Smoothing of production
2. Reduction of set-up time design of machine layout
3. Standardization of jobs
4. Improvement activities
5. Autonamation

A Kanban is usually a card put in a rectangular vinyl envelope. Two kinds are mainly used: Withdrawal Kanban and Production-Ordering Kanban. A Withdrawal Kanban details the kind and quantity of product, which the subsequent process should withdraw from the preceding process, while a Production-Ordering Kanban specifies the kind and quantity of the product which the preceding process must produce.

Autonamation

In order to realize Just-In-Time perfectly, 100 per cent good units must flow to the prior process, and this flow must be rhythmic without interruption. Therefore, quality control is so important that it must coexist with the Just-In-Time operation throughout the Kanban system. Autonamation means to build in a mechanism a means to prevent mass-production of defective work in machines or product lines. Autonamation is not automation, but the autonomous check of abnormality in the processes.

The autonomous machine is a machine to which an automatic stopping device is attached. In Toyota factories, almost all the machines are autonomous, so that mass-production of defects can

be prevented and machine breakdowns are automatically checked. The idea of Automatism is also expanded to the product lines of manual work. If something abnormal happens in a product line, the worker pushes stop button, thereby stopping his whole line. For the purpose of detecting troubles in each process, an electric light board, called **Andon**, indicating a line stop, is hung so high in a factory that everyone can easily see it. The Andon in the Toyota system has an important role in helping this autonomous check, and is a typical example of Toyota's Visual Control System.

8.0 PARTICIPANTS

The following Ukrainian agricultural manufacturing company representatives participated in the study tour.

Vitaliy Korostil	Tractor Plant, Chief Engineer (Group Leader)
Nadiya Gikovata	UrkAgroService Commercial Director
Kostyantyn Avramenko	Fasma, Vice-Director
Sergiy Bezborodov	TFQ, Deputy Technical Director
Roman Chefranov	Ukoopsnabmash, Marketing Head
Sergiy Danilov	Universal-Komplekt, Chairman
Sergiy Ivanenko	Gidroservice, Director
Volodymyr Pyrozhhkov	Alver, Director
Mykhaylo Shapiro	TFQ, Director
Mykola Tomilko	Zmiyevskoy Machine, Vice-Head Prod Dept
Sergiy Yakovlev	Busol, Marketing Director
Yuliya Zolotaryova	Vostok, Specialist-Analyst
Mykhaylo Zubko	Izyumsky Repair & Transportation, Chairman

9.0 INPUTS PROVIDED BY ADVISORS

Various inputs provided by friends included:

1. A list of possible host organizations to be contacted.
2. A detailed schedule of appointments.
3. Appointment details.
4. Changes to the tour schedule as necessary.
5. Advice to participants during the tours and at evening discussion periods.
6. Organization of seminars.
7. Organization of tours in conformance with budget allocations.

10.0. CRITERIA FOR HOST ENTERPRISE SELECTION

Host enterprises were selected so as to give the participants a broad picture of the U.S. Agricultural Equipment Industry. Characteristics that were crucial in selecting enterprises were their ability to provide the Ukrainians: exposure to technology, distribution, transportation, marketing, advertising, and packaging, and fostering new ideas for producing and marketing new value-added products in Ukraine. When there were several choices of companies in the same industry, those selected were generally more progressive, offered a clear difference to the Ukrainians, had active management participation, were geographically dispersed, and offered exposure to large/ medium/small sized industries.

Although the group was composed of diversified specialists from the same sector industries, and hence the companies had many common aspects, the tour program benefited each participant in one way or the other.

11.0. AMERICAN HOST ENTERPRISES

Date	Time	Destination	Contact	Purpose
9/8	7:40 pm	Arrive DL 957 , transport to Vernon Manor Hotel	Kathy Kathman Phone: 513-281-3300	Dinner/Residence
9/9	8:30 am	Orientation	Tour Director	Room Required
	noon	Lunch	Kathy Kathman	Room Required
	1:30	Cincinnati Tour, Kroger	Tour Director	Get oriented, Get food
9/10	9am-12 noon	RA Jones, Inc. 2701 Crescent Spring Road Covington, KY 41017	Ms. Paula Holmes , Director of Marketing and Wilma Jackson, Assistant Phone: (859) 341-0400 Fax: (859) 341-0519	Sophisticated Food Packaging Machinery Manufacturer/Supplier
	2 pm-4 pm	LaRosa Pizza 5008 Gray Road (Near College Hill & Winton Place) Cincinnati, OH 45232	Greg Gavin , Plant Manager Phone: (513) 542-1378/347-5670	Frozen Pizza Production. Commercial Rotary Freezing Technology.
9/11	8:30am-12noon	Cincinnati Incorporated 7420 Kilby Road Harrison Township Hamilton City, OH 45030	Troy Robinson , International Marketing Manager Phone: (513) 367-7100/367-7505	Machine Building
9/12	9am-11am	The Dupps Company P.O.Box 189 548 North Cherry Street Germantown, OH 45327-1108	Jack Risner , Sales Engineer John A. Dupps, President, Phone: (937) 855-6555 Fax: (937) 855-6554	Evaporation Systems/Process industry equipment. Various metal processing facilities.
9/13	4pm-6pm	Planet Products Corp. 4200 Malsbary Road Cincinnati, OH 45242	Dr. Carter Randolph , Chairman and CEO Phone: (513) 984-5544 (ext 141) Fax: (513) 984-5580	High-tech machines building operations for Food Packaging Industries.
9/14		CINCINNATI	DAY OFF	DAY OFF
9/15	7:30am-12noon	Caterpillar Inc. 100 North East Adam Street Peoria, IL 61629-6130	Paula Douglas , Robert Farquharson, Customer Programs Consultant (US & International) Phone: (309) 675-5347	Engine Making and others.
9/16	8am-12noon	John Deere 1100 13 th Avenue East Moline, IL 61244	Linda Alamanza , Guest Service Department Phone: (309) 765-8000/(877) 201-3924	Agricultural Equipment Manufacturing Operation related to Seeder and Harvester Works.
	3pm-	Kinze Mfg Inc.	Dolores Reinhart , Guest	Agricultural Equipment

	5pm	PO Box 806 I-80 (Exit 216, Morengo Exit) Williamsburg, IA 52361	Relations Phone: (319) 668-1300 Fax: (319) 668-1328	Manufacturing and Demonstration.
9/17	8am-11noon	Vermeer Manufacturing Company PO Box 200 Pella, IA 50219	Brenda Kelderman, Manager Corporate Events Jodi Devries, Global Pavilion Administrator, Robert Vermeer, Chairman/CEO; Mary Andringa, President/COO Phone: (641) 628-3141	Manufacturer of balers, stump cutters, chippers, trenching equipment, directional boring and contract manufacturing.
9/18	8:30am-12noon	Caterpillar Inc. (Wheel Loader & Excavator Division) Caterpillar Drive (Off Orchard Road) Aurora, IL 60507	Jennifer Ramey, Assistant and Dean Caho, HR Manager Phone: (630) 859-4725/859-5579 Fax: (630) 465-6346	Excavators, Loaders and Compactors.
9/19	9am-12noon	CM Associates, Inc. 18535 W. Creek Drive Tinley Park, IL 60477	Bud Gray, General Manager, Scott Janis, Operations Manager Phone: (708) 633-1166 / Cell (630) 308-7396 Fax: (708) 633-1168	High-end Appliance Finishing. Various product finishing and plating technique
9/20		Chicago	DAY OFF	DAY OFF
9/21		Chicago	DAY OFF	DAY OFF
9/22	8 am-11 am	Beard Industries 1750 W. State Road # 28 Frankfort, IN 46041-9146	Bill Crosby, Operations Manager Phone: (765) 654-8517 Fax: (765) 654-8510	Grain Drying Equipment Production. Storage and Drying Technology
9/23	8am-12noon	Chore-Time Brock (CTB) Manufacturing 611 North Higbee Street Milford, IN 46542	Bruce Mitchell, International Sales Manager Phone: (574) 658-5186/(765) 654-8517 Fax: (765) 654-8510	Corrugated Grain Silos Production, Storage and Drying Technology
9/24	8am-12noon	Stein Associates (FMC Affiliate) 1622 First Street Sandusky, OH 44870	Peter Lilejgren, Manager International Business, Liz Sargent Phone: (419) 626-0304 Fax: (419) 626-9560	Onion Ring & Breaded Mushroom Machines. High-speed water jet Meat Cutting machines.
9/25	9am-12noon	Toyota Motor Manufacturing North America 1001 Cherry Blossom Way Georgetown KY 40324-5700	William Taylor, Special Tours Phone: (502) 868-3025	Ultra-Modern Car Manufacturing Operation using Kaizen. Fully automatic robotics and plant visit.
9/26	8:30am-5:30pm	Exit Interview	Kathy Kathman Phone: 513-281-3300	Room Allocation

	6:30pm-9pm	Graduation Dinner		
9/27		CINCINNATI	DAY OFF	DAY OFF
9/28	12noon	Depart Hotel for Airport	Kathy Kathman Phone: 513-281-3300	Return flight via Newark: Flt DL-478 (2:40pm)

12.0 OTHER VISITS

13.1 Kroger Supermarket in Corryville, Cincinnati, OH

13.2 Value City in Cincinnati, OH.

13.3 Meijer Supermarket, Forest Fair, OH

13.0 PROBLEMS ENCOUNTERED/CORRECTIVE MEASURES TAKEN

13.1 During the early plant tours, members were very interested in different aspects of the plant and it was rather difficult to keep the group together. To avoid this problem in subsequent plant visits, group members were reminded over and over again.

13.2 Timeliness and punctuality were repetitive problems with this group. They needed to be reminded occasionally about this issue in order to maintain appointments and the time schedule.

13.3 The group deposited their air tickets and passports at Vernon Manor Hotel safe to avoid any loss.

13.4 Fatigue, and some illness, was evidenced by the end of the tour. Food, culture, language, time zone, frequent exposure to chilled warehouses and sheer travel sickness caught some members off guard. However, everyone was able to attend all sessions and events.

13.5 Some tour representatives wanted to have separate programs, custom built for themselves such as visits to a plant specializing in perforation. This was beyond the scope of the budgeted tour program.

13.6 Because of exhaustive and hectic travel programs to various towns and cities spread over five states, regular group discussions with the group leader and other members could not always be done in motel or hotel settings but rather on the run and on the buses. Group Leader helped resolve critical problem solving, issues, and in generally organizing the group but he could be better. Eventually, tour members were delegated definite tasks for collecting and compiling information.

14.0 EVALUATION BY TOUR MEMBERS: Exit Interviews

Leland Cole and Belal Siddique held post-tour individual interviews with each of the participants. Each was asked to comment on his or her impressions of the tour and on benefits they estimate could result through increased productivity and/or increased sales from the addition of new products. During the 15 minute interviews, each participant was able to describe those points he or she felt were particularly significant for their company. In addition, each of the participants took the opportunity to express their sincere thanks to CEI and USAID for offering this program, which was not only informative but enjoyable as well.

14.1 Kostyantyn Avramenko, Fasma

Written Evaluation

What ideas will you take back?

The main factors influencing development: 1) technology; 2) capital; 3) human resources. Technology development allows a 4 to 5% annual productivity growth (40 to 50% at certain companies), even with insignificant or zero investments.

Implementation of kaizen (continuous improvement), low-cost manufacturing, specific place for each part, “just-in-time.”

Customer relations: show them the process of creating a product (while they are pondering whether to buy it). This demonstration will make them 50% more likely to buy.

Quality control for parts: each worker checks the quality not only of his own parts, but also of the previous worker’s.

Each part has a bar code, which is entered into a computer. Each worker has a printed sheet in front of him telling him which parts to make.

Cards are used to order parts from suppliers.

Constant quality control: no parts with quality problems are released. Even lines can be stopped.

Robotics. Laser.

What ideas do you plan to implement?

By all means we should try to use the “just-in-time” approach in providing supplies.

The idea of production integration by increasing the percentage of outsourced parts. Use the idea of keeping just the assembly area, which means we put together packaging lines using a variety of equipment made by other companies, including not only parts but also large units. That will result in cost reduction.

The idea of fast production development, not only because of fast introduction of new technologies, but also because of service, repairs, equipment modernization (a third of Jones’ sales).

I would like to start using robots and laser cutting, but that seems too far-fetched at this point.

The idea of low-cost manufacturing. Implement lean manufacturing practices at our company. Vermeer’s example shows how to increase productivity and save money. That makes it possible not to increase product prices even when production is down.

Involve everybody in the innovation process (as a part of a lean manufacturing program).

Marketing - knock on clients’ doors.

Price and quality are inseparable.

Develop and produce new machines.

Customer relations should bring other economic benefits for our company. Customer relations: We should not only provide explanations about our packaging machines, but also about the quality of our customers’ products made on these machines.

What will be the economic benefits of the new ideas?

Production integration. Increasing the number of outsourced parts, including large units, can save us 3 to 5% in production costs.

It is very hard to implement the “just-in-time” approach to supplying parts in our conditions. But if we try, that can result in a most significant cost reduction.

Further development of service and repairs and equipment improvement can add 10 to 15%.

Verbal Presentation

The concept of outsourcing will help us greatly and we could possibly outsource as much as 70 to 80% of our components. The end result is that we could decrease our costs by 3 to 5%.

I like the “just-in-time” concept but it will be difficult to implement in Ukraine. Manufacturers are not used to providing accurate delivery times and we could find ourselves without vital components for our production. The overall manufacturing industry in Ukraine needs to be further advanced in order to implement the concept as we saw it in the U.S. However, it was an excellent opportunity to see the systems in operation and to know that it really works. At Toyota and Vermer they were able to reduce theirs by 8 times by using the “just-in-time” concept. The idea of quality circles was also new to me and we need to consider its adoption.

By using the “just-in-time” concept in our repair service operations we will be able to reduce our costs 10 to 15%.

Our company produces and markets packaging equipment. The visits to Planet Products and RA Jones showed us new equipment. When I return to Kharkiv we will discuss the possibility of designing new equipment along the lines of what I saw at these companies.

At Planet Products we were told that a marketing strategy is essential for growth and success. We will need to start work on that. It will also be essential if we are to attract new investors.

It is also necessary to demonstrate our equipment if we are to increase our sales. We can do a better job of that.

I really liked the use of bar codes and the manufacturing work sheets. These two items can really help reduce costs and confusion in the manufacturing process. I also liked the idea of having each manufacturing worker inspect the work of the previous worker. This obviously helps to improve quality and to reduce costs. Faulty components can be identified and discarded before additional costs are accumulated on components that will eventually have to be scrapped.

14.2 Sergiy Bezborodov, TFQ

Written Evaluation

What ideas will you take back?

I had been aware, in theory, of all the ideas that were demonstrated to us at U.S. companies. Here I saw how they work.

I was very impressed with laser cutting and wooden floors. These are the most realistic technical solutions that can be applied at my company.

What ideas do you plan to implement?

1. Replace concrete floors with wooden ones.
2. It would be great to purchase a laser-cutting machine, but the price (\$300,000-\$1 million) makes it prohibitive at this moment.

What will be the economic benefits of the new ideas?

It is impossible to calculate in one day the economic effect from implementing these innovations. That's why I am not going to cite unsubstantiated numbers.

Verbal Presentation

Here I was able to see visually everything I was taught about in Ukraine. Things that were theoretical I was able to see here in practice because obviously huge capital expenditures, people in Ukraine are not able to buy laser machines that I was able to see here.

Talking about economics, I understand that theory and practice do not necessarily coincide. People are not dogmatic about some economic concepts and they try to fine tune and adjust all those theories according to their own goals and according to their own potential possibilities.

I was very impressed with the manufacturing capability of Planet Products. This particular firm has a lot in common with our own company. Earlier I had heard that such production is possible theoretically, but I had a chance to see with my own eyes that it is really possible and that is something that we should be striving for.

We have recently acquired new space and we will be able to experiment. I will insist we install wooden floors there like I have seen in many companies here as opposed to concrete. Another good idea for us will be for us to purchase a laser cutting machine although the price is prohibitive for us at this point in time. So that might not be realistic. All the information we have received here was useful and I will have to organize it and apply it specifically to meet the needs of our production.

Speaking about the economic effect, it is hard to make our calculations in one day, but let me tell you that if we buy this laser cutter, we will be able to pay for it in two years.

What we can achieve by buying the laser machine is to use it instead of pressing and forming for sheet metal. And to some extent we will be able to use it instead of milling. The thing is that the company Stankinprom (a CEI alumnus) was allowed to purchase a machine from Germany which cost about \$800,000.

I liked Americans very much. They are very friendly, kind and gracious. Compared to Ukraine, I keep hearing all the time: excuse me, I am sorry.

14.3 Roman Chefranov, Ukoopsnabmash

Written Evaluation

What ideas will you take back?

Lasers!

1. High degree of cooperation.
2. "Just-in-time."
3. Kaizen philosophy: low-cost production, continuous improvement, brainstorming (from bottom to top).
4. Bar coding for products.
5. "Our equipment will work as long as you want it to..."
6. "We are more than a machine manufacturer" (slogan).
7. After-sales service accounts for up to 30% in sales at many companies.
8. ISO certification (tough but a necessity in the future).
9. Old equipment can be traded in for new (discounts for certain corporate colors).
10. If a particular machine has potential for the future, initially it can be sold much cheaper.
11. Inventory reduction.
12. New (improved) products are launched every six months (by many companies).

What ideas do you plan to implement?

1. Cooperation with our peers (on complex units, fixtures).

2. A service similar to John Deere's Gold Key program (when clients watch their machine being made).
3. A display (like at Caterpillar) showing own and competitors' parts.
4. We should not only sell our equipment but also assemble products (for example, shelves) that we will buy from another company.
5. Each worker checks the quality of the parts he turns out (the next worker is the previous worker's customer).
6. Provide flawless supply of parts for each type of equipment individually, as well as assembly drawings.
7. Offer a detailed questionnaire to each customer (to summarize requests, conditions, etc.)
8. Improve visual product appeal (packaging, labels) [Bud at CMA].
9. Move parts closer to the assembly line.
10. Use government statistics (categorized for different manufacturers) to look for potential clients.
11. Focus on direct mailings to customers.
12. While offering our products, it makes more sense to contact engineering or marketing, as opposed to the purchasing department. (They immediately start asking, "How much? How much?")
13. Dealers: Send our representative for the first assembly of a new product and for consulting. Provide incentives (bonuses) at the end of a season (more of our equipment, possibly). Delegate the advertising function to the dealers; provide them with a general framework and a higher discount. That will free our own employees, including accounting.
14. Provide incentives (at the end of a year) to workers with perfect attendance.
15. For me: Leave out my position on my business card (I can work with customers as a salesperson).
16. Purchase to the max not from specialist suppliers (working exclusively for us) but if possible, from generalist suppliers.

What will be the economic benefits of the new ideas?

1. High degree of cooperation with other manufacturers (and even competitors) will free some work time, increase our output of parts, improve quality, and decrease manufacturing time. This could save up to 20% in costs.
 2. Outsourcing parts to other manufacturers - additional savings of up to 10%.
 3. Quality control at every stage - savings of 10 to 15% on raw materials.
 4. Flawless supply of parts (fixtures and assembly drawings) - savings of about 10%.
- Plus expanding the dealer network could double our sales (compared to 2003) in the following two years. Our costs will go down. Attracting new clients will increase sales.

Verbal Presentation

I have gained a great many new ideas that I hope to implement when I get back.

I really liked the laser cutting machines we saw at Cincinnati Inc. One of those machines would be a great help in our manufacturing operations. I also liked the great degree of cooperation we saw at many of the companies. I calculate that increased cooperation at our plant will help reduce costs by 20%.

At Toyota we saw the concept of "just-in-time" being practiced with great success. We certainly could benefit from using it in our company.

We also saw the use of "brain storming" where decisions are made from the bottom-up, not the way we do it which is top-down. That is a practice that would really help our company. At several companies we saw the effective use of slogans to give workers incentives and to track their

performance. We had experience with slogans during the Soviet period, but these were much more effective.

The extensive use of bar coding really helps in keeping track of inventory items and in reducing manufacturing costs.

I liked the practice at John Deere where the customer could visit the factory and inspect his machine at final testing. We will consider this practice at our company.

We should be able to increase profits by 10% if we assemble parts for others. They can be increased by another 10% by using better methods that we saw when visiting the U.S. host companies.

I found the discussions of the dealer network very interesting and helpful. We should work on increasing our dealer network and, if we are successful, should be able to double our sales in 1 to 2 years.

14.4 Sergiy Danilov, Universal-Komplekt

Written Evaluation

What ideas will you take back?

1. Set up production based upon modern technologies: expand the stamping department; agricultural products processing and storage.
2. Retrain our sales personnel to expand our product line by including imported parts (Brock).
3. Complete the restructuring of our company functions into sales, analytical, marketing, purchasing, finance departments and a warehouse (Toyota).
4. Improve tracking systems of sales by our current clients. It is necessary to forecast customer demand correctly.
5. Further expand the network of our branches (Brock - requirements [for a Ukrainian distributor])
6. Reorganize our warehousing system. Create a “transparent” system for storing and tracking products. (Toyota - boxes with inscriptions]
7. Interesting solutions in the sphere of management that increase the efficiency of each employee (Toyota - bonuses for employees with perfect attendance).
8. It is a necessity to improve operations continuously. Even stable businesses do not slow down in their development (CM Associates - labels).

What ideas do you plan to implement?

[no response]

What will be the economic benefits of the new ideas?

[no response]

Verbal Presentation

I regret that I did not have a chance to visit Caterpillar and John Deere. These were two companies I was very eager to see. Of what I have seen here I would like to highlight certain significant aspects. To start with, I would like to mention that we have our own stamping shop so we stamp or form parts for internal combustion engines.

Facing the challenge of expanding our production, we were seriously considering buying domestically manufactures presses, but after visiting the U.S., I seriously reconsidered that option. At this point I really believe we should go after buying state-of-the-art modern equipment for stamping. In other words, we will have to reformulate our development strategy.

As you know, our major focus is in retail spare parts. So I really saw an urgent necessity to retrain our personnel to make them capable of working with foreign parts. At this point we work with domestic parts only. We will consider the objective of becoming distributors for Caterpillar

or European manufacturers. Obviously we need to retrain our personnel starting with top managers and ending up with sales assistants. That is what I see as the most pressing need at this point for my company.

After I saw this monster operation at Toyota, I again regretted not having seen John Deere and Caterpillar. At this point I am involved in restructuring our company. We want to make it an advanced and sophisticated company in Ukraine which might be at least one step ahead of our peers in Ukraine. It is very hard to retrain people and have them learn new things. We are trying to do that by setting up specialized departments for sales analysis and communication, marketing, finance, purchasing (warehouse), and also a manufacturing production department. This idea of restructuring is an idea suggested by a marketing company working for us. After what I saw here, I understood very clearly that their suggestions were correct. So what they recommended was really correct and should be done.

Another thing that I learned here is the further development of branches in the country. When we talked with Brock Manufacturing they told us that one of the key requirements for their partner in Ukraine is an extensive network of branches. That again is something I realized we should be doing.

These were strategic things that I described. Now, I would like to make some minor observations. One of the things was the analysis systems those companies used. A lot of them take really detailed notes of which customers turned away from them and they try to analyze the reason why that happened. They have a detailed data base of all their customers, their former customers, etc. A lot of companies here work on forecasting sales and even Toyota makes a forecast on five months ahead.

Another idea is to restructure our warehousing. At this point I really believe we should set up a more transparent system of stocking, inventory control, we should unify our documentation, and every spare part should have a bar code. Basically now we have a specialist who knows where everything is in the warehouse. I would like to change the system and make sure a warehouse worker will not need to look for things but will know where they are. We will need to look at the bar code and go to the bin number. In the past I ignored this warehousing organization. In this unified warehouse system our employees want me to know the difference between a particular shaft and a gear. He will just need to go to that particular location and take that part from that particular shelf.

Another observation from a management perspective, Toyota told us the incentives they provide for perfect attendance. To us, we trusted our people to some extent. People would ask to excuse themselves, and so for us it was pretty much a matter of trust. But I really believe we should be establishing incentives to encourage perfect attendance.

Another psychological observation here was that I thought at some point there would be a final destination in my business. But then in talking with SEM Associates, I noticed the phrase that there is never a final destination. You can never have enough customers. I really understand that we should not be like sprinters. We should not be thinking about 2 years or 5 years to squeeze all our efforts in a short term perspective. We really should be working on strategic decisions with a much longer perspective.

14.5 Nadiya Gikovata, Ukrainian AgroService

Written Evaluation

What ideas will you take back?

Production:

- 1) Minimal production cycle. The high level of U.S. economic development, the stable internal and external environment allow companies to operate smoothly.
- 2) Product quality is the foundation of success.

- 3) Quality control takes several stages: worker inspects his own work, the next line worker inspects the work of the previous worker, their supervisor performs another inspection. Bonuses are offered for discovered defects.
- 4) Performance of each employee and each team are made public.
- 5) Bar codes are used to label parts. Computer tracking makes it possible to reduce the number of assembly mistakes.
- 6) Production organization:
 - modular (production within production) - John Deere;
 - competition inside a company among different areas;
 - all manufacturing is done to order.
- 7) Cleanliness.

Management

- 1) Providing incentives to employees, not only financial in nature (a party for those with perfect attendance, pension plans, insurance, etc.).
- 2) The discipline is rigid - American mentality.
- 3) Time management (reducing production time thanks to better organization), “just in time,” kaizen.
- 4) Constant training for employees.

Marketing:

- 1) There is a lot of focus on demonstrating equipment, manufacturing facilities and the company in general (showrooms, videos, testing grounds, glass-enclosed galleries for visitors).
- 2) Videos:
 - principles underlying company operations;
 - technical issues;
 - design;
 - important aspects of operating a machine;
 - advantages;
 - dynamic graphic design.
- 3) Several packages for after-sale service - for the client to choose from.
- 4) Personal contacts are the basis.
- 5) More than 50% in sales come from parts.
- 6) 99% of sales go through dealers. Interesting scenarios regarding dealer relations.

Verbal Presentation

Basically the two areas I was interested in during the study tour were production and marketing. As far as production is concerned, I am going to pass this information on to the top management including Mykhaylo Shvartsman (CEI alumnus) and I hope we will be able to implement all those ideas. Now, I noticed every company here has minimum cycle of production, so they try to achieve it by any possible means. Of course it is helped by the high level of development in the country in general, by internal and external factors, and also I understand that the foundation of every success is the quality of products. That is achieved by quality control that is implemented in several stages. So each worker controls or checks his own quality, the work of the previous worker, and the team leader is responsible for that and as a rule there is a special quality control service or department that does final checks. Also we noticed that the results of individual and team performance are made public on boards on the walls. That of course acts as an encouragement and incentive as well.

What was new for me was using bar codes for identification and computer tracking of component parts which certainly reduces the number of errors on the assembly line and that is something we are really suffering from. We are talking about rejects and substandard production right there at the end of the cycle.

Speaking about the production organization, I noticed that there is never a chaotic movement at any of the companies. There is always a strategy everybody is implementing. John Deere showed us their modular production. Also a new idea for me was competition between different departments or divisions or suppliers within one company. And also, all the products have been previously sold – all production is customized. They have a specific customer in mind when they make a particular product.

As for management, I noticed that the incentive for employees is not only financial in nature. We are also talking about non-material incentives such as organizing parties or including benefits such as health insurance, etc. Another thing that is impressive is that we should learn, is rigid discipline. And this stringent and rigid discipline is taken for granted. It was very important for me to see personally such well known principles or philosophies as “just-in-time” and Kanban. Just to see how they work was a great help and it was wonderful to see that they really work and are practical.

As far as economic resources are concerned, it is very important to train them on a continuous basis. When companies plan to switch over to a new model, they start training the employees 6 months in advance. They start with assemblers and they finish with the sales people.

Speaking about marketing directly, and I am pretty sure we will be able to implement about 90% of what I have seen here. What is really emphasized here is demonstration, showing ones equipment, the production segment, and the company in general. So all kinds of conference rooms are provided, there are videos and movies, presentations, and glass paneled galleries for visitors to make customers sure and confident of the quality of the product and of the seriousness of the company.

I have designed the sequences of a promotional video about my company, so not only will we show the equipment we make, but also the manufacturing process. We will include some sound bites from our executives, etc. So now I know how to make this video.

Speaking about customer relations, the conclusion I have made for myself is the necessity of personal contacts, face to face contacts. We understand that letters and telephone calls are good, but personal contacts, especially at the level of top management, are essential. Also it is a good idea to offer several packages or options for after sales support and the customer has a chance to choose among these options.

We also noticed that some companies make 50% of their sales by selling parts. Yes, we can do that too, but we should get serious about that, we should think about advertising. Actually the tour provided a serious push for me. Another lesson here is that 99% of the sales go through dealers. Yes, I understand that people here have a different mentality and pursue things differently, but again that is something that we should be working on.

We have a dealer network now but we do not have one to such an extent as they have in the U.S. We have representatives because each and every company can become a dealer.

14.6 Sergiy Ivanenko, Hidroservice

Written report

What ideas will you take back?

1. Technology: high-speed and high-precision laser cutting; multi-purpose heavy machines (presses, benders); foundry; organization of work spaces; “just-in-time” concept; jet portioning of meat.

2. Management: clearly defined conditions of work with dealers, using bonuses as an incentive; clear delegation of responsibilities at all levels.
3. Marketing: very close work with end users (phone calls, visits to companies). Consumers are prepared to spend a lot of money only for high-quality and high-precision machines.

What ideas do you plan to implement?

1. Using “just-in-time” concept, reduce the inventory of parts and equipment at our warehouses.
2. Use cooperation with other plants to the max (outsource parts, manufacture non-standard equipment).
3. Equalize terms for all regional distributors to even up their selling prices. Forbid dealers to lower prices for our products to win in bidding.
4. For workers in specialized areas (turners, millers), consider introducing a system of low-cost organization of their workspace and time, like at Vermeer Co.
5. Considering our complicated relations with large manufacturers of chicken meat, offer them equipment for high-speed portioning of meat.

What will be the economic benefits of the new ideas?

It is hard to say now how effectively the ideas generated during this study tour will affect the economics of my company. I expect our corporate profits to grow by 25-35%. We employ qualified economists at my company, who will be able to process all the information received during this study tour and make more specific calculations of the economic effect. I will definitely inform you about the results.

Verbal Presentation

I think it is a little premature to say that I have learned things and only my future actions will show what I have really learned. However, I have seen quite a lot of interesting new and exciting things that I would never have seen any other way. Everything I have learned I can further subdivide into three major categories: equipment & machines, management, and marketing. Now I am going to touch on each of these areas.

Technology:

Speaking about equipment and technology, I believe that everybody was amazed and impressed with the high speed, precise laser cutting equipment. Also, the universal machining centers were very impressive. We also use bending machines and presses of different sizes but I have never seen Universal machining centers like I saw here. They can do several operations at the same time.

Speaking about the foundry, in my line of work, I deal with foundries a lot. I have never seen such cleanliness and precision in harmonizing the technological processes that we saw at Caterpillar. I have never seen anything like that. Also I was impressed with the way work stations were organized. Now the “just-in-time” concept is great. Although I am involved with hydraulics in Kharkiv, what we saw at FMC was very interesting. We saw how a piece of meat was cut with a water jet. That was really an eye opener and I have never seen anything like that.

Management:

Working with dealers as partners on equal conditions, that is something I have not tried to achieve in my operations yet and I consider that very essential. Also, paying incentives and bonuses instead of giving a discount was another new idea for me. Also, very clear cut job descriptions for employees at all levels starting at assemblers and machinists and ending up with presidents and top management.

Marketing:

Speaking about marketing, I was really impressed that the bulk of marketing is done with dealers of agricultural machines, not necessarily with the end user. At the same time the end user is not ignored. The whole chain of distribution is monitored to some extent and the end users are not forgotten. Companies keep calling them, e-mailing them, visiting them, observing their machines in use, giving them gifts, and basically taking care of them. So the main idea is that large companies are prepared to pay big money for quality products and excellent service.

Speaking about the ideas I will be able to implement, some of them are realistic and others are not. I am certainly going to discuss them with my companions and partners.

Idea #1: Using “just-in-time” philosophy. We should try to reduce the inventory in the warehouse. I am talking about spare parts and equipment. Although it does present problems in our country, with our vendors and suppliers that is something we really should be working on.

Idea #2: Entering into partnerships and cooperation with other companies. The idea is to outsource production with specialized manufacturers basically to relieve my own employees from unnecessary work and operations. Some work that we can place with somebody else.

Idea #3: To level the playing field for all dealers and distributors so they will not be competing against each other for best prices. At this point we do have a competition and I don't think it should be like that. Conditions should be the same for all dealers.

Speaking about highly specialized machinists such as turning, drilling, and milling machine operators, etc. the idea is to introduce the low cost manufacturing practices such as practiced by the Vermer Company. My production is primarily hydraulics and we have relations with poultry, pork, and meat processors. So the idea is to develop high speed and precise hydraulic cutting machines for them like we saw at Stein.

We hope there is a good market for this product despite the cost of \$500,000.

Speaking about the economic effect, of course there is always a difference between the ideas and their implementation. But very approximately, I can tell you that we will be able to increase our profits by 25 to 35%. I do want to tell you that we have very highly qualified economists working at my company and we are also going to involve consulting firms and they are going to process the information I have received here and they are going to localize it given our conditions and specifics of operation.

I know that CEI maintains communication with its alumni and I would like to tell you that I will report about my recommendations about what I will do. I will get back to you.

14.7 Vitaliy Korostil, Kharkiv Tractor Plant

(Did not provide written evaluation)

While we were visiting all those companies I was very impressed with their new equipment, highly efficient technologies and one thing that I had never seen before. That was a laser cutting machine. Speaking about plans for my company, I hope that using Nina Pavlovna's resources we will have a chance to purchase laser equipment which will enable us to reduce our costs. That will be a progressive step forward in the process of making spare parts for our tractors.

Speaking about the tractors here, for a while I was not able to understand what makes them so expensive. But then when I saw the whole process starting with the very first step until the very last when a planter rolls off the line, I got all my questions about the pricing strategy answered. I realized very clearly where the bottlenecks are in our machinery production. And there are obviously a lot of ideas that we should be introducing into our manufacturing. I am talking about painting, service, and pre-sale preparation of our machines.

It is absolutely essential for us to increase the number of dealers. That is probably the most important conclusion I have drawn from the study tour. To boost our sales we need to increase the

number of dealers. It is especially true that since the collapse of the former Soviet Union, the number of dealers has decreased significantly. I would also like to tell you that we used to have dealers in the U.S. selling our tractors.

Before coming here I succeeded in opening a new dealership in Western Ukraine. Now I see the need for setting up more dealerships in the more affluent sections of Ukraine, Russia and other regions.

Another advice that I am going to share with people who own land is to set up the complete cycle by having grain storage facilities and processing facilities if they have poultry farms or pig farms etc. So the idea is to have the whole cycle: land, storage, and processing.

I understand that those livestock breeders have problems with selling the by-products such as wings. We tried those buffalo wings at FMC and they are very tasty. And again, I know some individuals will be buying some equipment and hopefully they will be able to set up networks of fast food places not inferior to McDonalds.

Then there followed a long discussion about fast food which had little to do with the Tractor Factory.

I consider it very important to share this information not necessarily with my company, but with other parties that might be interested. That is what I am going to do. When I go to different exhibitions I pick up trade brochures and I give them to my contacts. I have a database at home which lists all different types of information and where they are and I can easily locate them when needed.

I was also very impressed with the abundance of corn and soy fields I saw here. That again is something we should be learning from America. I know that 70% of corn grown here is used to make animal feed. It all starts with the farmer, the people who work on the land. Obviously, the more prosperous they are the better yields they get, the better equipment they will be able to afford. So I am just trying to work backwards and understand the whole chain. If farmers have money they will be able to select the most modern and effective machinery that fits their needs.

Speaking about my company, I am going to write a technical report with economic data that I will be using to corroborate the conclusions in the report. I should tell you that our financial management changed in February and now they practice a more democratic approach to capital distribution, distribution and production. And I hope in this report I will be able to see our own resources used to increase production and to reduce our costs.

Our capacity is huge, but at the same time, we don't have customers who are able to buy our machines. This is true for both domestic and foreign equipment. In Russia, almost 80% of agricultural machines are worn out and in Ukraine this percent is even higher.

Now we are selling mainly to Africa. They have little money, and buy tractors with capacity up to 50 horsepower with one tractor costing \$5,000. And also they buy small batches up to 50 tractors. We can also supply any tractor with the spare parts and options they want such as a heater, air conditioner, rubber tires, or whatever they want.

I have learned a lot of useful information here, something we should be implementing in our Ukrainian market.

14.8 Volodymyr Pyrozhkov, Alver

Written Evaluation

What ideas will you take back?

Technologies: high-speed laser cutting of metal, jet portioning of chicken, high level of robotics (Toyota).

Management: work with dealers and through dealers, same conditions for all dealers (system of bonuses for sales volume); work exclusively to order; “just-in-time” principle; organization of workspaces (Vermeer), high culture in manufacturing, not much time is wasted.

Samples of products taken from Caterpillar, Kinze, Vermeer.

Marketing: aggressive, close contacts with clients (phone calls once a week, visits once in three weeks), developing customer relations via providing after-sale service (accounting to up to 25% of sales volume), participation in specialized trade shows and publications.

What ideas do you plan to implement?

1. Reduce inventory of equipment and parts in our warehouses (“just-in-time” principle). Invest the saved resources in production.
2. Propose that the administration of our parent company change the system of work with our regional dealers by providing them equal conditions as to prices and delivery terms, as well as bonuses.
3. In manufacturing, stop making products “for the warehouse.” Manufacture strictly to order.
4. Change the system of paying for our products. Reduce the share of our company’s capital in circulation. Start operating based upon clients’ advance payments (partial or complete).
5. As to the parent company, propose that the experience of Vermeer be studied to improve production and work space organization.
6. Use more aggressive marketing (phone calls and visits). Place ads in industry publications.
7. Try to set up a dealership for Caterpillar machines in the Donetsk Region to sell to mining companies.
8. Propose that the administration of our parent company consider cooperation with Kinze (manufacturing of their planters?).

What will be the economic benefits of the new ideas?

1. If inventory of equipment and parts in the warehouses is reduced by 200%, we will free up to \$70,000. Given profitability of 10% and once-a-month turnover, the annual profit will be \$84,000.
2. If delivery terms are changed (advance payments used instead of a “ship first-pay later” approach), resources up to \$12,000 will be freed. Under the above-mentioned conditions, annual profit will be \$14,400.
3. If workspaces are set up properly in the flour grinding department, two positions can be eliminated. Savings of up to \$2,400 a year.
4. Changes in the system of operation of our parent company and dealers will result in better structuring of the ag machinery market and consequently will increase our share of sales. The economic benefits from that are rather hard to calculate.

Verbal Presentation

The most important thing I learned is that we must increase our turnover. Here they follow a lot of different techniques that we do not follow in Ukraine. For example, there is a system of “Just-in-time”. This is the first time I have heard of that. If we can cut down all these operation costs then we can save a massive amount of money. This is one question. For example, at Vermer, where they manufacture bailing and other equipment, I saw they had cut down the number of operations and the work has been intensified. They use the same technique as they use at Toyota, but it has been developed by the workers themselves.

I would have liked to have spent more time working with the dealers because it is very different in our country. For example, how you select dealers and give discounts. You use different techniques with the dealerships in the U.S. For example, they give a lot of incentives including cash back, but in Ukraine, everybody gets the same price. There are no volume discounts, nothing. I am interested in offering some type of business involving Caterpillar. They have a slightly different profile, but what we saw in Caterpillar was very interesting. I was very interested in the seeders produced by Kinze. Compared to John Deere, they are much simpler and effective. They can produce that kind of equipment back home. They have the capability. I will definitely recommend this to my management.

Marketing is very aggressive in the U.S. and you cannot be satisfied that you have done everything. Your job is never done. We have concentrated exclusively on production and never thought about the marketing.

Basically the technology doesn’t differ from ours. Some technologies are very interesting such as at Stein (FMC) where we saw a high pressure water jet that cuts meat. At Cincinnati Inc we saw the laser cutters. Toyota uses a great many robots in their operation. It is not the technology that is different in the U.S., but it is the organization of enterprise management that is really different.

Whatever I saw I will try to convey to my management.

14.9 Mykhaylo Shapiro, TFQ

Written Evaluation

What ideas will you take back?

1. Comprehensive computerized tracking of all production stages: raw materials - purchased parts - blanks - parts - units - complete product - sales.
2. Laser metal-cutting technologies.
3. Methods of quality control.
4. Considering the general recession in U.S. machine building and U.S. companies’ search for new sales markets, set up a joint venture in Ukraine to manufacture and sell products and services in Eastern Europe.

What ideas do you plan to implement?

1. Implement a quality-control system.
2. Computerized tracking.
3. Purchase a laser cutter.
4. Purchase a measuring machine.

What will be the economic benefits of the new ideas?

[no response]

Verbal Presentation

I saw and learned many things that were of interest to me. First, we should fine tune our quality control system. Companies here have a much more efficient system and we can learn from them. We could also use a computer measuring system to ensure we are getting the proper quality of components.

The second thing is that I would like to install a computer tracking system in manufacturing so we can keep better track of the progress of parts and machines as they progress through the manufacturing cycle. This will require that we purchase a computer network with the necessary hardware and software and that will be expensive for us.

I also would like to purchase a laser cutting system even though it will be very expensive for us. I believe it would pay for itself within 2 years.

I would like to establish a joint manufacturing venture with Cincinnati Inc. and Planet Products. I believe we could be a good source for components for them. We will need to look into this in the future.

There were a great many other things of interest on the tour and I could talk at great length about them. However, this would take more time than we have available.

14.10 Mykola Tomilko, Zmiyevskoy Machine

Written Evaluation

What ideas will you take back?

- I learned some concepts of laser technology.
- Operation of hydraulic presses with CNC.
- Bar coding of units and parts before feeding them to the assembly line.
- Attaching fixtures to the unit (part) they go with.
- Reducing manufacturing time.
- Availability of spare parts for after-sale service.

What ideas do you plan to implement?

- Accumulate parts for after-sale service.
- Attach fixtures to the unit (part) they go with.
- Reduce manufacturing time.

What will be the economic benefits of the new ideas?

[no response]

Verbal Presentation

I was very impressed with the laser cutting machines. The reason is that I had only heard about them and had never seen one. Then I saw the CNC punch press machines that can be programmed to make certain parts according to preset specifications. Also spare parts. You know I always played with the idea of having a warehouse with spare parts at my company but when I found out that companies here make up to 30% of their income by providing spare parts, that is a very convincing argument and is something I can use to press on my colleagues to tell them that this is the area we should be expanding.

Another observation here is that each line worker checks the work of the previous worker. Also, if we are talking about assembly lines, it is very important that each unit is provided to the assembler with all the component parts and required fixtures. That is, the assembler spends his time assembling rather than looking for those parts all around the place. The Vermer Company showed us how they were able to reduce the production time from 8 weeks to 4 days. They did not make all those parts in advance for some vague specific plan, but they make parts specifically for

one machine and then they assemble this machine. So it is a piece by piece production as opposed to continuous production. So they make small batches of machines.

A new design idea we saw at Kinze was an arrangement whereby they can easily fold their wide-row planters into a transport position. So they make folding planters. That is a design idea that I will be using myself.

These are the major things I learned.

I can tell you I anticipate the economic effect will be that we should be able to increase our production volume by 15%.

As far as marketing methods are concerned, they are pretty much the same. We are participating in trade fairs, using advertising in magazines and journals, direct mail, phone calls, and we also use another strategy by making initial cold calls and if we see any interest, we send them our price list and then we make follow-up phone calls. If we see that farmers have a meeting, convention, seminar or the like, we try to attend the conference ourselves to market our services and products. We might even bring our machines there to show them.

14.11 Sergiy Yakovlev, Busol

Written Evaluation

What ideas will you take back?

- Availability of a defined mission.
- Development strategy, implemented with awareness of future needs.
- Longevity of a company proves its reliability, not its competitiveness.
- Manufacturing products already sold.
- Short vertical hierarchy in manufacturing (manager - supervisor - worker).
- High level of computerization in companies (from manufacturing and service to sales).
- Viewing the “company - dealer - customer” sales philosophy as the most effective.
- Impressive cleanliness at plants.
- Availability of schedules for training and retraining of dealers and specialists in client companies.
- No long-term inventory of parts.

What ideas do you plan to implement?

Short-term implementation plans include:

- set up a dealer network in Ukraine and Russia;
- develop job sheets [individual assignments] to increase volume and improve quality;
- take part in trade shows outside Ukraine;
- work on making our products more appealing visually.

Timeline – 1 to 2 years.

Long-term plans:

- develop our corporate image as a reliable, established and growing partner;
- search for part suppliers and develop quality relations with them;
- expand our production line depending on our customers’ demand;
- penetrate new sales markets.

Timeline: 5 to 6 years.

What will be the economic benefits of the new ideas?

I can assume that, given the market situation improvement in Ukraine and stability of its political and legislative systems (and absence of force-majeur events), the following forecast is possible:

- short-term economic effect – 20 to 25% in sales increase;

- in five years - doubling our volume (and sales).

Verbal Presentation

Of course, speaking about implementation, there are more things that I should be talking about and they require more time for analysis. Let me share my first impressions with you. I have divided my implementation plan into two stages: short term and long term.

My short term plans are roughly 1 to 2 years. Specifically I am talking about setting up a dealership network in Ukraine and Russia. Then I am going to develop very detailed work assignments and task sheets for each and every operator. Basically, the operators should not need to think about what is to be done. They need to know what to be done in each operation. That will certainly increase our volume and our quality.

The next item here is participating in trade shows outside of Ukraine. I am talking about specialized shows. The next thing is making our products presentable and attractive.

Now as to the long term plans. Here I am talking about 5 to 6 years. Here I will be shaping the company as a reliable partner that has been working in this market for a long time.

The next item here is to search for suppliers or vendors of spare parts and establishing contacts and partnerships with them. Obviously the relationships that existed in the former Soviet Union have disintegrated. So now we are trying to re-establish them and it is not always easy. So basically we are talking about putting together the supply chain. Establishing those contacts and partnerships requires a lot of time. There is a test and trial period and then we move from smaller batches to larger batches. It all takes time in terms of checking quality and delivery times. It is a time consuming and lengthy process.

I am in marketing and promotions, but if I am to do my job well I need to apply pressure on top management of Busol to restructure their organization to meet modern requirements. Another new idea here is to capture new markets in which to sell our products, and to increase their product line.

The economic effect of this is based on assumptions that our market situation and legislation will remain at least at the level they are at now. That will help us increase our level of production and sales by 25% within a year or two and by 200 to 250% within 5 to 6 years – that is 2 to 2.5 times. Speaking about marketing, the methods that they use here are pretty much the same but the efficiency of using them in the U.S. is higher. Obviously all components of production and sales are working very smoothly. In our country they are not structured in many areas and are rather chaotic. So as time passes, the situation will be stabilized. The very same marketing strategies will produce a much better return.

There is a question about the paint and appearance of the Busol products. The company tries to stake its position on low cost and to obtain a competitive edge to survive in this fierce competitive struggle. This makes products cheaper and that includes substandard production because one bad point is sub-standard production. Our technology of painting is reasonably good, but the paint itself is quite cheap.

14.12 Yuliya Zolotaryova, Vostok

(Did not provide written evaluation)

As way of introduction I would like to say, of course, we have visited a lot of companies and received a lot of information which needs to be further processed and structured.

I was very impressed with the laser machines. These are the machines that are very infrequently seen in Ukraine and I am sure that these machines will be able to repay their investment within 18 months or two years. By introducing such a machine we will be able to increase the speed of production and also the production volume.

I was very impressed with the robotics here, especially with the robotic welders. At this point we employ 10 human welders and we need to provide certain working conditions. Obviously this is very hard and intensive work and they have to be paid their financial expenses, etc. Obviously by replacing human welders with robotic welders we would be able to reduce costs significantly. If we are dealing with a closed cycle of production, when most of the parts are manufactured in-house, obviously quality control becomes much easier.

I work at Vostok and I am the Marketing Director and also responsible for equipment. We are talking about the entire cycle from ordering to shipping. I am to some extent involved in price setting but the final decision is made by the General Director. We have 12 people in marketing and sales.

Also I was very impressed with the organization on the production floor with all kinds of little things they used such as they used spray paint to mark lines around machines to mark circles around a certain machine and that is done for safety. Also, one of their managers mentioned that it is much easier to maintain safety in a clean environment. Of course that is a reflection of American mentality, but I was very impressed with how we were met and hosted at all those companies, the demonstrations and presentations were set up but the fact that they have all those observation grounds or visitor galleries at various companies, they make presentation movies to show the visitors, they have programs and shows to highlight their equipment.

Another thing that impressed me was the abundance of different slogans the factories. Yesterday when we visited Toyota we saw all those ping pong tables and pool tables to give the workers a break because they are obviously involved in highly repetitive and boring work. So these are provided to get the workers exercise and to get them to do something else during the break time. Also, almost every company has a history wall which traces the history of the company, what they started with, what their first product was, and what they have achieved over those years.

Speaking about marketing, I was very impressed with the selectiveness of advertising campaigns. There are large and mid-level companies that don't seem to go in for advertising. They don't really spread their advertising budgets too thin by advertising everywhere and in all publications. Selectiveness is very important because as we know, advertising does not come cheap.

Also, I have noted the aggressive marketing strategy CM Associates practices and their philosophy is to keep knocking until the door is open. They keep calling until they get someone to answer. They use all kinds of non-standard and different advertising gimmicks for example by sending someone a card with sound or RA Jones sent their customers a puzzle with the name of the company that they could put together.

Also I liked the idea that the company maintains a list of mistakes the company makes. It is very important that managers learn from their mistakes and those of others. It is important for clients and sometimes they don't even know what they want, and it is also very important for the top managers of the company. And also it is a good idea to have some kind of production agreement between the company and the customer because very often the customer does not know what they want and all those arrangements need to be documented in writing. This documentation might cover the production process, or technology or other topics. But to avoid misunderstandings in the future, there should be very clear guidelines as to expectations. Pretty much everything is done according to customer's orders. Speaking of pricing, I know there are no rigidly determined prices, they are pretty flexible. They might name an approximate price. Each price is calculated in each and every specific situation considering what the particular customer wants, the technical specification, even which paint should be used on the product.

Another idea of incentives is provided for late orders and for placing orders early. There is a price differentiation for different companies depending on the volume, on the time of the order, the percentage of advanced payment, etc.

Speaking of the economic effect, obviously all kinds of information was provided that is very hard to implement given our conditions and the state of our company in general. At the same times there are certain technologies that can be implemented. Certainly safety measures can be implemented and that is something we will be working on. I am going to include this information in the technical report. And also my colleagues are waiting for me to come back because they expect me to write an article in a specialized publication.

14.13 Mykhaylo Zubko, Izyumsky Repair & Transportation

(Did not provide written evaluation)

When I return I will write a report about our study tour. It became clear during our tour that organizational changes at our company are required in technology, production and personnel. We need to have written description of the various jobs and operations. More training of our personnel is clearly required. That includes everyone from top managers to machine operators. This will enable them to execute more of their current strategy.

We have had a high growth rate recently and are hopeful that this will increase to 170% next year. We are also hopeful that we will be profitable this year.

We currently sell our equipment to France, Germany, and Turkey.

We are hopeful we will be able to purchase some advanced technology. This will enable us to expand into the manufacture of other parts for Western manufacturers. However, we will need equipment to be able to do this.

Prior to this study tour I was not sure how to proceed. Now, after seeing the U.S. companies, I know what I need to do and will develop a plan to accomplish it. I am particularly interested in manufacturing components for U.S. firms.

15.0 RECOMMENDED SHORT TERM MEASURES FOR DEEPER TOUR IMPACT

Tour members benefited enormously from this visit, as can be seen in the exit interviews. Many members were interested in getting follow-up information from the various plants visited, and in exploring technology and financial cooperation with U.S. organizations. They would like to have active CEI participation in one form or the other. A proposal seeking approval for funding a Productivity Center helping Ukrainians is necessary to take full advantage of the tour program.

- 15.1 CEI should publish a listing of the companies and persons who have participated in the study tour program and distribute it to all the study tour companies. They all have this experience in common and this will provide a way for them to network.
- 15.2 CEI should develop a pricing presentation.

16.0 LOGISTICS

16.1 Hotel Accommodations

During week ends and dates the study tour program was scheduled for Cincinnati area firms, the tour group stayed at the Vernon Manor Hotel in Cincinnati. This hotel was selected because of the many overall benefits it provided. When the tour traveled outside Cincinnati, accommodations were made as appropriate in various motels. All participants were given double rooms with two beds without gender mixing. All rooms were blocked from making long distance phone calls, and charging food or drinks. Participants were able to make these purchases separately on their own account. Overseas phone calls were generally made by purchasing pre-paid phone cards.

16.2 Meals

- a. While in Cincinnati, breakfast was provided at the Hotel Vernon Manor. On many mornings CEI representatives (Dan McKinney, John Kuhn and Lee Cole) were available for interpretation or other assistance. To avoid menu translation and schedule delays, buffet meals were preferred over waitress services, when available.
- b. In general, participants received \$10 stipends for breakfast, \$10 for lunch and \$15 for dinner unless meals were provided by CEI. In this way, participants had full control over their meals and CEI kept costs within budget. Weekly meal allowances were given to tour members on Saturday.
- c. CEI provided meals on two occasions: lunch on the group's first orientation arrival day at the Vernon Manor Hotel; and the concluding dinner and certificate presentation at the Queen City Club.

16.3 Bus Transportation

The Vernon Manor shuttle bus transported the guests from and to the airport. This service was also available for transporting guests to downtown and other nearby shopping areas. Transportation to tour sites was done with a rented 45-passenger coach from J & J Tours.

16.4 Shopping/Sightseeing

All participants were anxious to shop for friends and family at home. On weekends, many spent their free time shopping. The hotel shuttle bus driver was very accommodating and took them to discount stores in the area. On some occasions (time permitting), the regular tour bus driver would stop for shopping or sight seeing, such as the Dayton Air Force Museum/Imax Theater. Some CEI members helped by shuttling to local attractions like the Cincinnati Zoo and Covington Aquarium. In Chicago, the group visited Sears Tower, boat ride, took a walk around the downtown/Michigan Avenue, and Science Museum where they saw IMAX Theater. These visits in all cases were paid for by tour members, and had a deep impact on their perception of America.

17.0 PARTICIPATING CEI and OTHER ADVISORS

Mr. Leland M. Cole
Center for Economic Initiatives
P.O. Box 234
Terrace Park, OH 45174
Tel/Fax: (513) 831-6741
E-Mail: lcole@ukrainebiz.com
Activity: Project Director

Dr. Belal U. Siddique
President - Beltan International Inc.
608 Arrowhead Trails
Loveland, OH 45140
Tel/Fax: (513) 683-2509
E-Mail: belal@ukrainebiz.com
Activity: Tour Director

Dan McKinney
2500 Bedford Ave
Cincinnati, OH 45208
Tel: (513) 871-1410
Activity: Plant Selection, Interpretation.

Philip J. Murphy
738 Hand Ave
Cincinnati, OH 45232
Tel: (513) 542-0546
Activity: Interpretation

Thomas R. Dunn
Dunn & Titus, Architects
800 Compton Road
Cincinnati, OH 45231
Tel: (513) 522-8755
Fax: (513) 522-7844
Activity: Plant Selection, PR, Plant Visit

Dr. James M. Silberman
2110 Popkins Lane
Alexandria, VA 22307
Tel/Fax: (703) 765-6534
Activity: Co-Project Manager

APPENDIX

BRIEF DESCRIPTION OF PARTICIPANT COMPANIES

1. Gidroservice LTD

Established in 1999 is a LTD company. Number of employees: 15 and in operation: 9.

The company specializes in complex shipment of hydraulic and pneumatic equipment made in Ukraine and abroad, as well as repairing of hydraulic equipment. Unique hydro laboratory of the Company allows it to test any hydraulic equipment.

The Company works in the markets of Ukraine, Russia, Kazakhstan, Belarus, Armenia, and Bulgaria. Besides this, the Company has representatives in Russia who promote products and consult on what equipment to choose to meet special requirements.

To diversify their product, the Company produces a number of items for home preserving: sealers and can & bottle openers.

Since 2001, the Company produces vacuum devices for milking equipment. In 2002, the Company started to produce flour grinding machines, capacity 40 – 150 kg/hour for wheat, rye, barley, corn, peas, etc, as well as to grind coffee, spices, and refined sugar.

Hydraulic cylinders for agricultural equipment are in the process of development.

Company highlights

- They specialize in complex shipment of hydraulic and pneumatic equipment, as well as repairing of hydraulic equipment.
- They work with Ukraine, Russia, Kazakhstan, Belarus, Armenia, and Bulgaria.
- The company has representatives in Russia who promote their products and do consulting.
- As of 2001, they started producing vacuum devices for milking equipment.
- Also in 2002, they started to produce flour grinding machines with a capacity 40 to 50 kg/hour for wheat, rye, barley, corn, peas, coffee, spices, and refined sugar.

Goals for trip

- To learn present samples of equipment, their comparative characteristics
- To learn new production technologies
- To establish business connections
- To learn new technologies to produce new equipment

Main advantages:

- Individual conditions for every customer
- Powerful production base, which is easy to modify
- Up-to-date computer technologies
- Possibility to place series production orders at the Gidroprivod Plant

Company goals:

- To expand list of products for agriculture
- To keep the profitability of production at the level of 40 %
- To gain access to new foreign markets

Contact Address:

1 Malapanasovskaya Str,
Kharkiv, Ukraine
Phone: 380 (572) 200-300
Fax: 380 (572) 7-123-666
E-mail: gidroservice@ukr.net

2. UkrAgroService LTD

Established in 1997 and ownership is a LTD company. Number of employees: 64 (Male: 38 and Female: 26).

The company specializes in equipment for grains and food processing. The Company developed a unique complex to process grains for flour and cereals for SME that does not have analogues in the CIS countries. To diversify their products, the company started the production of equipment to make noodles, smoke generators and packaging equipment. Last year, the Company started to produce vacuum type planters. Due to unstable economic situation in Ukraine, in 2002 the Company started to produce grinders of non-metallic wastes and raw materials, as well as equipment to enrich finished products and seeds.

Among other products: equipment to enrich the class of wheat; micro-mill to grind spices and refined sugar.

Main advantages:

- Distribution system
- Optimal relation of price and quality for the equipment
- Conditions to sell products, as well as the system of patented equipment, irrelevant to the date of purchase

Company goals:

- To expand market share on the territory of Ukraine, and abroad
- To master new segments of the market on the territory of Ukraine and abroad
- To increase profits

Goals for the trip:

- Specifics of work with clients in companies that sell industrial goods
- New methods of work with clients and partners of the organization
- To gain share in the market by introducing new items (relationship with competitors)
- Amount of work via Internet, as well as proportion of sales via Internet
- Internet marketing techniques

The applicant is sure that direct meeting and talking to the companies which have succeeded in business, and learning the techniques they have used, can be more helpful than just reading books and articles on these issues.

Contact Address:

21a Kosmicheskaya Str, Kharkiv, Ukraine
Phone: 380 (572) 30-22-40
Fax: 380 (572) 194-623
E-mail: zbut@agroservice.com

3. Izumsky Repairing and Transportation Open JSC

Established in 1996 and the ownership is a Open JSC / collective. Number of employees: 76.

The Company manufactures soil processing machines, provides repairing and servicing of agricultural equipment (combines BIZON, DPN-1500, NIVA, KOLOS), silos harvesters, beets harvesters, trucks, tractors, equipment for farms, deep pumps, production of cultivators, spare parts.

Major repair work for irrigation systems is planned for the future.

Processing of cereals and combined feed.

Total territory: 60,000 square meters

Equipment:

The Company has the following shops: multipurpose lathes shop, rolling shop, forging, welding, paint shop, wood shops, fuel equipment shop, electric shop and spare parts.

Main advantages:

- Low price on products and services comparing with big machine engineering enterprises; high quality products and services comparing with small scale enterprises; skilled engineering and technical staff; park of specialized production equipment, energy saving technologies and highly technological processes of repair and production of parts and aggregates.

Company goals:

- To provide the growth of production and services volume by 40 % with the profitability not less than 15 % within 2 years due to inner investments and right crediting policy comparing with clients.

Goals for the trip:

- To see principles of activity of analogues enterprises; mechanisms of financing of the development of agro-industrial and servicing enterprises; technological processes and equipment; teaching of personnel; mechanisms of cooperation and payment between agri-producers, manufacturers of agricultural equipment and repair offices;
- To establish professional contacts.

Suggestions for cooperation with home and foreign partners on the following aspects:

To assembly agricultural equipment with parts and aggregates of the joint venture producer, sales organization of this equipment in the region and servicing;

To install equipment to process agricultural products on own production areas;

Purchase on agreements of the financial leasing of agricultural equipment to use agricultural enterprises.

Contact Address:

21 Entuziastov Str., Izum, Kharkiv Oblast, Ukraine

Phone: 380 (572) 2-25-79

Fax: 380 (572) 2-23-89

E-mail: izymrtp@kharkov.ukrtel.net

4. Universal-Komplekt Production and Technical Center

Established in 1992 and ownership LTD. Number of employees: 66 Male: 57 Female: 9

The main activity of the enterprise was finishing and sales of automobile and agricultural spare parts, mostly rolling bearings.

The Company consists of four production and trade enterprises. It also has branch offices in Khmelnytsky, Sumy and Poltava, as well as in Odessa Region.

The Company has a laboratory on incoming control of spare parts, and aggregates, which is in the process to get a certificate at the Ukrainian Agency on Standards. It has specialized equipment, which allows it not only to detect a defect, but also to correct it.

There is also a motel and a cafeteria for our clients and visitors. Within 11 months of 2002, about 12 000 customers visited our offices.

Total amount of sales for 11 months 2002, including barter, is 11 048.7 thousand UAH.

Company goals:

- To satisfy the needs of agricultural equipment manufacturers in full by expanding the list of products and increasing the quality of our spare parts.

Goals for the trip:

- To learn experience of counterpart production and trade companies in the US, including:
 - Correct evaluation of market shares, and positioning regarding competitors;
 - Progressive management methods and personnel management techniques;
 - State-of-the-art methods of statistics and economic analysis, applied on practice that would allow to foresee demand and supply at the market, thus to plan finance activity of the enterprise and price policy;
 - Forms of accounting and control on financial and trade flows at the enterprise;
 - Principle of the development of branch offices network and techniques of stimulation and control.
- To see the work of market specialists of production and trade enterprises, to learn efficient ways to collect information and appearance of goods at the market
- To learn techniques of intensive farming in the US
- To see products of machine engineering enterprises in the USA, in particular, those which produce agricultural equipment and spare parts to it.
- To establish business connections to provide an access of American companies to the market in Ukraine

Contact Address:

20 Morozova Str,

Kharkiv, Ukraine

Phone: 380 (572) 19-83-11

Fax: 380 (572) 14-96-50

E-mail: uk@uk.com.ua

Web-site: www.uk.com.ua

5. TFQ LTD Engineering Group Open JSC

Established in 1994 and ownership is LTD company. Number of employees 200 (jan, 2003).

TFQ consists of three companies: TFQ Engineering Group Open JSC, TFQ Production Group PE, and TFQ Trade Group PE.

The Engineering group makes designs, develops systems of controllers and control systems to manage technological process.

The company specializes in manufacturing of macaroni machines, capacity from 50 to 250 kg/hour;

Matrixes and fillers for macaroni presses of small, medium and industrial class of home and import production, capacity from 15 to 2000 kg/hour;

Forming shafts for rotor lines to produce sugar cookies and crackers

The Company provides personnel training to work with its equipment, servicing of equipment both home and foreign, expert services to select foreign equipment and technologies, updating of used equipment.

Company profitability: 24 %

Average profitability in 2002: 18 %

Production facilities and equipment:

Leasing of production facilities from the Etalon Plant (600 sq. m), it also buys 4 –floor building (4700 sq. m – 4000 sq. m. of production capacity)

The policy of the Company is to spend from 7 to 13 % of annual profit to update the production.

Company goals:

- To stimulate labor
- Creation of optimal structure of an enterprise

Goals for the trip:

- Management techniques of big enterprises
- Production organization, “just on time” work or analogue to it.
- Main motivating actors for managers to choose priority development direction for 5 – 10 years.
- Up-to-date experience in production organization
- Overall management

Contact Address:

3 Biologicheskaya Str,

Kharkiv, Ukraine

Phone: 380 (572) 771-02-86 / 87 / 90

E-mail: tfg@dotmail.com.ua

6. Zmiev Machine Engineering Plant Open JSC (ZMEP)

Established in 1923 and ownership is collective. Number of employees: 384. 50 % share belongs to the Megabank, Kharkiv.

The company specializes in manufacturing heavy disc plows; industrial laundry machines (washing machines, centrifuges, dryers, dryers-presses of various capacity); dry cleaners of various capacity, absorbers; disinfections chambers, steam generators.

The Plant also has the following units: storing production that can process sheet material (.5 – 70 mm thick); mechanical processing production: grinder, gears, toothed wheels; welding; assembly and experimental production; galvanic, painted, polymer covering and plastic-rubber items.

A railway comes to the Plant.

Main advantages:

- To gain economic stability,
- Production flexibility and fast transfer to new line

Company goals:

- To gain economic stability,
- To create competitive products,
- To achieve high quality of products,
- To gain profits with minimal expenditures

Goals for the trip:

- To gain economic stability,
- To learn practice of American companies that manufacture agricultural equipment; management techniques, technologies and marketing; to see the ways to expand the list of produced items
- To consider opportunities for joint production of some equipment, or other ways of cooperation.

Contact Address:

115 Fifty-Years-to-Komsomol Str, Zmiev,

Kharkiv Oblast, Ukraine

Phone: 380 (5747) 3-11-56

Fax: 380 (5747) 3-26-93

E-mail: zmz@zm.kh.ua

7. Fasma Production Enterprise

Established in 1991 and ownership is LTD. Number of employees: 15 (Male: 9 and Female: 6).

The company specializes in sales of packaging technologies, including production and repair of equipment for packaging agricultural and food products (equipment for packaging milk and other dairy products in plastic bags, plastic disposable bottles; equipment for packaging butter and cottage cheese in aluminum foil and parchment paper; equipment for packaging pate-like products into ready-made polymer glasses; equipment for thermal forming of boxes made from polyvinyl chloride and polystyrene with welding with aluminum foil; equipment for packaging cereals, sugar and other agricultural products); design and implementation of trademarks and labels; repair of refrigerators and technological dairy equipment.

The company had office, production, and storage facilities. It also produces spare parts and aggregates, as well as assembling of equipment.

Equipment:

Lathes – 2; Milling machine, Guillotine, Rollers, Various types of welding, Sharpeners, Drill press and other equipment and special devices

The applicant considers “Portion Pac, Inc”, Cincinnati, USA an example for the development of the Fasma Enterprise.

Goals for the trip:

- To gain experience of the developed countries can give to Fasma to increase the share of the market, as well as the quantity and quality of products.

Contact Address:

91 Kalinina Str,
 Kharkiv, Ukraine
 Telephone: 380 (572) 196-100
 Fax: 380 (572) 196200
 E-mail: fasma@un.com.ua

8. Vostok LTD

Established in 1997 and Ownership is LTD. Number of employees: 181.

The company specializes in development, production, repair and modernization of non-standard equipment, including cardboards, metal constructions, etc.

Goals for the trip:

- To receive additional knowledge to expand and get new niches for the company.

Contact Address:

2 Kuznechnaya Str, office 12
 Kharkiv, Ukraine
 Phone: 380 (572)196-590; 196-220
 Fax: 380 (572)17-16-47
 E-mail: info@vostpack.kharkov.com

9. Kharkiv Tractor Plant Open JSC

Established in 1931 and the ownership is Open JSC. Number of employees: 5 thousand. The company specializes in the production of tractors of various types and spare parts for them.

Main advantages:

- Plowing and tilling tractors

Company goals:

- To expand list of products
- To expand the market

Goals for the trip:

- To learn counterpart enterprises and meet managers of these enterprises
- To communicate with managers of counterpart enterprises on sales management

Contact Address:

275 Moskovsky Ave, Kharkiv, Ukraine
 Telephone: 380 (572) 95-79-05
 Fax: 380 (572) 94-08-22
 E-mail: info@xtz.kharkov.ua

10. Alver Private Enterprise

Established in 1999 and Ownership Private Enterprise. Number of employees: 28.

The company is an official distributor of the Tochmash Plant Open JSC, Donetsk. The plant in Donetsk was established in 1916 to produce machine for mining industry, railway, and consumer goods.

In 50's – 80's the Plant mostly produced military equipment and mining industry.

After the crash of the USSR, the Plant underwent the process of conversion, and since 1992, it started the production of agricultural equipment. Considering big technical and technological potential, the enterprise managed to take the share of the market.

Distribution in Kharkiv Oblast has 18 % of the market.

The following items are produced:

- disc harrows for low tilling;
- multi-purpose harrows;
- cultivators; etc.

Distribution is done through advertisements in local newspapers, expositions in agricultural regions of Ukraine.

Main advantages

- the level of quality due to higher level of technologies of production and construction particularities of the equipment produced;
- higher level of technical knowledge of employees;

Company goals:

- To increase sale amount due to more aggressive distribution;
- To increase the variety of products due to possible cooperation with foreign partners;
- To gain access of foreign market.

Goals for the trip:

- To learn the experience in creation of the network of agricultural equipment sale;
- To learn the connections and relationship between producers and farmers;
- To gain experience in advertisements campaigns and presentations;
- To learn the experience of “civilized” struggle against competitors.

Contact Address:

120 Moskovsky Ave,

Kharkiv, Ukraine

Phone: 380 (572) 26-79-42

Fax: 380 (572) 26-75-16

E-mail: ITL1300@online.kharkov.ua

11. Busol LTD

Established in 1992 and Ownership: LTD. Number of employees: 26 Male: 23 Female: 3

During post-perestroika times (since 1991), a group of highly qualified engineers from a production institute made a decision to organize their own firm to produce unique equipment for agriculture, oil processing and medical spheres. When the Busol LTD was created, it continued to do the same.

The first heating element appeared in 1997. It received all necessary certificates, and in 1998, the company started selling their inventions.

In 1999, the company started the production of wire-wound binders for advertisements.

Now, the company is developing and expanding, it finds new sales markets.

The Company created a unique heating element (covered thermal cable or glass-ceramics).

Main advantages:

- Highly qualified personnel
- Technology of module assembly
- Own construction department
- Adequate combination of price and quality
- Environmental friendly
- Reliability

Company goals:

- To develop new items
- To start series production
- To improve their design

Goals for the trip:

- To see the implementation of technologies of active sales in the agricultural market
- How environmental issues are solved
- How energy conserving issues are solved
- Methods to increase efficiency
- How issues to increase consumer attraction are solved
- Sales technologies

Contact Address:

47 Leninan Ave,

Kharkiv, Ukraine

Phone: 380 (572) 300-384

Fax: 380 (572) 176-635

E-mail: busol@argosoft.kharkov.ua

12. Ukoopsnabmash Kharkiv Experimental and Trial Plant, JV

Established in 1947 and the ownership is collective. Number of employees: 84 (Male: 55, Female: 29)

The company was established in 1947 to provide technological equipment and vehicles to enterprises, which process agricultural and livestock products. After the World War II, the Plant produced necessary equipment to restore the ruined agriculture in the country. Later, the Plant started the production of consumer equipment (refrigeration units for stores, heating machines, shelving units, and metal containers). After the collapse of the Soviet Union, the plant suffered from losing all previous sale and purchase markets with other republics.

Now, the plant conducts active work on increase of production amounts, due to the capacities and facilities left, establishes business contacts, gain new markets, etc.

Every year, the company increases the range of products and finds new consumers. Thus, since 2002, the company started the production of mailboxes, washing units, radio relay containers for cell-phone operators, as well as special shoes for coal mining.

Average share market is about 18-19 %.

Distribution is done through the exposition hall at the plant, as well as enterprises, which are in the system of consumer cooperation of Ukraine. Since 2003, the Plant plans to expand the dealer network in the biggest agricultural regions of Ukraine (Odessa, Nikolayev, Kherson, Summy, Poltava, and Kirovograd)

List of products:

- Metal parts for hangars;
- Extruders (to get oil form raw sunflower seeds);
- Filler for preliminary filling with vegetable and mushroom soup, solanka, and borshch;
- Machine for grinding and wringing of raw potatoes;
- Coffee grinders;
- Machine to skim fat away from skin of fox, mink, and white fox

Main advantages:

- Production, storage, office facilities, and exposition hall are on the same territory.
- The company has all the necessary equipment to have the complete cycle
- Possibility to provide additional services, like metal processing, decorative covers.
- Warranty and post-warranty services
- As the Plant is a part of the system of consumer cooperation of Ukraine, it has the opportunity to present its products nearly in all regions of Ukraine. The Ukoopspilka Bank allows secure advantageous credits.

Company goals:

- To master the production of new equipment (2002)
- To become one of the biggest producers of processing equipment in the Eastern part of Ukraine (2003)
- To gain access to markets of Russia, Belarus and Europe (2004-2005)
- Implementation of up-t-date technologies of production organization (constant)
- To increase annual production at least by 25 % (since 2001)

Goals for the trip:

- To see the process organization of the agricultural equipment production
- To master sale and market analysis, methods of competitiveness research.

Contact Address:

124, Srlianskaya Str,
Kharkiv, Ukraine

Phone: 380 (572) 712-62-49

Fax: 380 (572) 712-62-28