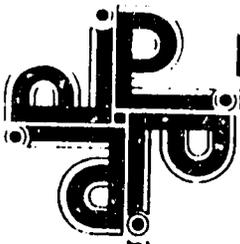


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# Postharvest Institute for Perishables

POSTHARVEST LOSS PREVENTION OF PERISHABLE CROPS

Presented by the  
Postharvest Institute for Perishables  
University of Idaho  
Moscow, Idaho  
U.S.A.

574  
1980-8

Coordinated by  
USDA  
Office of International Cooperation and Development  
International Training Division  
(OICD/ITD)

September - October, 1983

GTS Report No.  
PIP Shortcourse/March 84/No. 40



in cooperation with  
**United States Agency for  
International Development**

**Project Title: Storage and Processing of Fruits and Vegetables**  
**Project No. AID/DSAN-CA-0265**  
**Washington, D.C., U.S.A. 20523**

## I. INTRODUCTION

The USDA Office of International Cooperation and Development, International Training Division (USDA/OICD/ITD), requested that the Postharvest Institute for Perishables (PIP), University of Idaho (UI), develop and present a short course in postharvest loss prevention of perishable crops.

As a result of this request, Dr. Robert Julian, Field Director, PIP; Dr. Richard Ohms, Technical Advisor, UI College of Agriculture; and Mr. Kenneth Hoyt, Resource/Training Coordinator, PIP and other resource personnel from the University of Idaho initiated the program planning for the course.

The short course on postharvest loss prevention of perishable crops was implemented on September 5, 1983 and continued for a period of five weeks, terminating on October 14, 1983. The major objectives of the course were:

After successful completion of the short course, each participant should better be able to:

1. Identify components of the postharvest management systems.
2. Identify and access information related to postharvest loss reduction.
3. Understand the economics of a viable postharvest system.
4. Be aware of cultural and sociological impacts on postharvest loss prevention programs.
5. Understand postharvest physiology of perishable crops.
6. Identify and control factors affecting postharvest losses.
7. Harvest, handle, store, process and market perishable crops to reduce losses.
8. Control preharvest and postharvest pests.
9. Understand the role of the private and public sector in the production of perishable crops.
10. Implement postharvest technology outreach.

There were eleven participants in the course representing the countries of Nigeria, Nepal, Indonesia, Belize, Jordan, Kenya, Costa Rica, Sri Lanka, Rwanda, and Burundi. (See Appendix I for complete listing of names.)

Over twenty-five resource specialists from universities, USDA, and the private sector were utilized to present the course. These instructors were chosen for their recognized expertise in such areas as economics, physiology of perishable crops, anthropology, engineering, research, farm production, entomology, agricultural marketing development, and private sector agribusiness. They provided firsthand information to the participants to meet the established objectives of the course.

## II. SHORT COURSE IMPLEMENTATION

The short course on postharvest loss prevention of perishable crops was presented in three phases. (The complete course listing is attached as Appendix II).

The first phase, one week in duration, consisted of classroom lectures and discussion on subjects concerning postharvest management systems, information related to loss reduction, economic systems of perishable crops, cost effectiveness of loss reduction, cultural patterns, physiology of perishable crops, and factors and quality control affecting postharvest losses. Additionally, harvesting and handling of perishable crops by mechanical practices through food processing technologies as well as transportation equipment was discussed at length in an effort to reduce economic losses.

The premise of the first phase of training was to present an overview of the postharvest system to provide the participants with a base of information from which they could develop concepts of their own. They studied basic information on postharvest systems which enabled them to observe how all parts of the postharvest system are interrelated and where losses occur.

Phase two consisted of an extensive tour of the States of Idaho and Washington for a period of three weeks. Discussions continued simultaneously with observational visits. Contract production and quality requirements along with farm and storage facilities were visited. Participants were exposed to both public and private research facilities and laboratories. Tours to equipment manufacturing plants exposed the participants to unloading, piling and conveying equipment. Visits to fresh packing as well as canning and freezing plants provided first-look experiences. Discussions evolved around contracts and marketing. Afterwards wholesale and retail outlets were

visited. Power requirements and transport by motor freight and sea were observed and discussed.

Upon completion of phase two, the participants returned to the University of Idaho for the final week of the course. During this final week, system requirements to stimulate profitable perishable crops were discussed. Specifically, quality factor development, preharvest and postharvest pest and disease management along with the procedures for estimating crops losses were studied. Economics of market development discussions outlined the principle factors in domestic market development as well as export market development. The role of the private sector, government, and university in production of perishable crops, as well as grower associations and commissions, governmental regulatory agencies, land grant colleges of agriculture, and research and extension services were also included.

### III. SUMMARY

The three phases of the course formed a triad: first phase - basic information; second phase - observation and application; and the third phase - methods for implementation. By using this methodology of instruction, the participants were able to achieve the objectives stipulated for the course.

Evaluations completed by the participants upon conclusion of the course revealed that each of them perceived affordable parts of the postharvest system and procedures that could readily be implemented within their own countries. Participants identified specific home goals upon return for themselves and rated the overall course as excellent.

### IV. PLANNING ACTIVITIES AND PROBLEMS

As anticipated, the short two-week lead time caused numerous problems. Scheduling of facilities, instructors, teaching material preparations, lodging and transportation for the tour were a few. All of the problems encountered could readily have been negated with adequate lead time.

## V. PARTICIPANTS

The participants selected for the course were excellent. All had a technical background that enabled them to comprehend the level of instruction. This was evident in the course evaluation. There was always someone to spend time on a one-to-one basis with the participants when necessary.

### Minor Problem Areas

1. There were a few complaints about the lodging costs, especially during the observational tour. The overall allowance was more than sufficient for per diem costs. There were no complaints about the University of Idaho dormitory meals and lodging costs, although it was suggested that single rather than double rooms might be preferable.
2. The transportation provided on the field trips and observational tour was a deluxe 14-passenger van. Even though there were only 11 participants, they felt a bus would have been less confining. Also, there was not a lot of room for luggage.

Cultural activities that were included in the course were a Thanksgiving dinner for the group in an American home and an end-of-course reception in a private home. The group visited Yellowstone National Park over a weekend and many other areas of interest such as the Snake River Canyon and a boating trip on Lake Coeur D'Alene. All participants were provided transportation for shopping. A banquet was given at the end of the course.

## VI. RECOMMENDATIONS

1. Sufficient lead time in preparing the course content.
2. More preparation time for instructors and lead time for scheduling their teaching activities.
3. Better transportation, possibly a chartered bus.
4. Schedule more weekend time for participants to be on their own.

The Postharvest Institute for Perishables understands the reasons for the short lead time. Sincere thanks is given to USDA/OICD/ITD for allowing PIP to present this course.

APPENDIX I

1983  
POSTHARVEST LOSS PREVENTION OF PERISHABLE CROPS  
SHORT COURSE

Sponsored by the  
Postharvest Institute for Perishables  
and the  
University of Idaho College of Agriculture  
International Agricultural Programs Office

in cooperation with  
USDA/OICD

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PARTICIPANT MAILING LIST

| <u>NAME</u>               | <u>ADDRESS</u>  |
|---------------------------|---|
| 1. Mrs. Kehinde A. AGBAJE | National Seed Service<br>Federal Department of Agriculture<br>P.M.B. 9, U.I. Post Office<br>Ibadan, NIGERIA |
| 2. Deonath YADAV          | Institute of Agriculture<br>and Animal Science<br>Rampur, District: Chitwah<br>NEPAL                        |
| 3. Djayeng SUMANGAT       | Bogor Research Institute for Industrial<br>Crops (Balitri Bogor)<br>Jl. Cimanggu No. 1<br>Bogor, INDONESIA  |
| 4. Dudung MUHIDIN         | Sub Balai Penelitian Tanaman Pangan<br>Jl. Ragunan 2g - Pasarminggu<br>Jakarta Selatan, INDONESIA           |
| 5. Kent PARHAM            | Agricultural Department<br>Toledo District<br>BELIZE, C.A.  |
| 6. Tayseer I. ASSI        | J.V.F.A.<br>P.O. Box 56 Deer Allâ<br>Jordan Valley, JORDAN  |
| 7. David ARAP-SOME        | Agricultural Engineering Department<br>University of Nairobi<br>P.O. Box 30197<br>Nairobi, KENYA            |
| Until July 1984:          | Agricultural Engineering Department<br>The University<br>Newcastle-upon-Tyne, NE17RU, ENGLAND               |

| <u>NAME</u>           | <u>ADDRESS</u>   |
|-----------------------|--|
| 8. Ana Victoria ROMAN | CITA, Research Director<br>Universidad de Costa Rica<br>San José, COSTA RICA                     |
| 9. Ponniah SIVAPALAN  | "Skanda Vasa"<br>Chankanai<br>SRI LANKA .  |
| 10. Juvenal KABILIGI  | B. P. 621 Kigali<br>Ministry of Agriculture<br>Kigali, RWANDA (Afrique Central)                  |
| 11. Mark MANDARI      | 3. P. 64 NGOZI - Societé Régionale<br>de Developpement du Buyenzi (S.R.D.)<br>Bujumbura, BURUNDI |

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Postharvest Institute for Perishables  
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University of Idaho  
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Staff:

1. Dr. Robert L. Skiles, Director
2. Dr. Robert E. Julian, Field Director
3. Dr. Ronald V. Curtis, Staff Economist
4. Mr. Kenneth Hoyt, Resource/Training Coordinator
5. Dr. Richard Ohms, Technical Advisor
6. Ms. Paulette Foss George, Librarian/Information Specialist
7. Ms. Gleanne Wray, Administrative Secretary
8. Ms. Doris Kayser, Clerk

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 Postharvest Institute for Perishables

POSTHARVEST LOSS PREVENTION  
OF  
PERISHABLE CROPS

Short Course Schedule

September 10 - October 15, 1983  
University of Idaho  
Moscow, Idaho 83843  
U.S.A.



in cooperation with  
**United States Agency for  
International Development**

Project Title: Storage and Processing of Fruits and Vegetables  
Project No. AID/DSAN-CA-0265  
Washington, D.C., U.S.A. 20523

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POSTHARVEST LOSS PREVENTION OF PERISHABLE CROPS

September 12 - October 14, 1983

Saturday, September 10 - Participants arriving Moscow, 4:45pm, Cascade Airlines Flight No. 628

Sunday, September 11 - Free Day

Monday, September 12 - Course Begins (Student Union Building, 3rd Floor, Spalding Room)

Morning:

- 8:30 Welcome: Dean R.J. Miller and Dean L. Branen  
College of Agriculture
- 8:45 Dr. Robert L. Skiles, Director  
Postharvest Institute for Perishables
- 9:00 Introduction of Course (Objectives)  
Dr. Robert Julian, Field Director  
Postharvest Institute for Perishables
- 9:15 Introductions: PIP staff and participating faculty - Julian
- 9:30 Participant Introduction - Self Introduction
- 10:00 Coffee Break
- 10:30 Northwest Agriculture  
Fruits, Vegetables, Roots & Tubers  
Dr. Richard Max, USDA Crop Reporting Service,  
Boise, Idaho
- 10:45 Postharvest Management Systems  
Perishables vs Durables - Julian  
1. Pre-harvest/Postharvest  
2. Postharvest systems (Overview)
- 11:45 Lunch - Wallace Complex Cafeteria (Use meal ticket)

Afternoon:

- 1:30 Sources of Information Related to Loss Reduction - Skiles
- 1:45 Postharvest Information Center and Its Utilization  
Paulette F. George, PIP Information Specialist
- 2:00 Library Tour - PIPIC, Paulette George
- 2:30 Coffee and Donuts (Library, Staff Conference Room, First Floor)
- 3:30 Pictures, meet in front of UI Library

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Postharvest Loss Prevention of  
Perishable Crops, continued  
Page 2

Tuesday, September 13 (Student Union, 3rd floor, Spalding Room)

Morning

- 8:30 Economic Systems of Perishable Crops - Overview  
Farm to Consumer  
Dr. Ronald Curtis, USAID/UI Ag Economist  
Dr. Smith Greig, WSU Ag Economist
- 10:00 Coffee Break
- 10:30 Economic Systems - Feasibility and Locational Analysis  
Drs. Curtis and Greig
- 11:45 Lunch

Afternoon

- 1:30 Cost Effectiveness of Loss Reduction  
Production/Marketing - Dr. Steve Smith, UI Ag Economist
1. Commercial market
  2. Home consumption
- 3:00 Coffee Break
- 3:30 Cultural Patterns, Anthropologist, Dr. Allen Marshall,  
Lewis Clark State College
1. Rural Cultural Patterns (small farmer)
  2. Rural family participation - cultural/social
- 4:45 End of Day

Wednesday, September 14, Student Union, 3rd floor, Spalding Room

Morning - Postharvest Physiology of Perishable Crops

- 8:30 Fruits - Dr. Walter Kochan, University of Idaho
- 10:00 Coffee Break
- 10:30 Roots and Tubers - Dr. W. Iritani, Washington State University
- 11:45 Lunch

Afternoon - Postharvest Physiology of Seed Crops

- 1:30 Root and Tubers, Dr. W. Iritani
- 2:30 Fruits - Propagation, Dr. W. Kochan
- 3:00 Coffee Break
- 3:30 PIP Information Center, Paulette George
- 3:45 Visit Analytical Laboratory and Tissue Culture Laboratory
- 4:45 End of Day

Thursday, September 15, Student Union, 3rd Floor, Spalding Room

Morning

- 8:30 Factors Affecting Postharvest Losses of Perishable Crops  
Overview - Gary Aple
- 10:00 Coffee Break
- 10:30 Factors Affecting postharvest losses
- 11:45 Lunch

Afternoon - Quality Control of Perishable Crops

- 1:30 Fruits, Ken Olsen
- 2:30 Vegetables, D & K Frozen Foods, Walla Walla  
Jim Beal

Thursday Afternoon, September 15, continued

- 3:00 Coffee Break
- 3:30 Roots and Tubers, Dennis Conley and Gibb Monroe, Sun Spiced Co.,  
Moses Lake, WA.
- 4:30 Panel Review  
Moderator, Dr. Richard Ohms
- 4:45 End of Day

Friday, September 16, Harvesting & Handling of Perishable Crops to Reduce  
Losses, Student Union, 3rd Floor, Spalding Room

Morning

- 8:30 Fruits, Ken Olsen, USDA
- 9:30 Mechanical Practices, Dr. Charles Peterson, University of Idaho
- 10:00 Coffee Break
- 10:45 Roots and Tubers, George O'Leary, Washington Potato Commission
- 11:45 Lunch

Afternoon - Food Processing Technologies to Reduce Losses

- 1:30 - Dr. Smith Greig, Washington State University

Transportation Equipment and Planning to Reduce Economic Losses  
Dr. Ken Casavant, Washington State University

- Coffee Break
1. Equipment  
2. Scheduling  
3. Time in transit
- 4:45 End of Day

Saturday, September 17 - Leave Moscow, Drive to Opportunity, Montana

Sunday, September 18 - Mammoth Hot Springs, Wyoming (Yellowstone Park)

Monday, September 19 - Tour Yellowstone and Teton National Parks

- 5:00pm Arrive Westbank Hotel, Idaho Falls, Idaho  
475 River Parkway, Telephone: (208) 523-8000

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Tuesday, September 20 - Fresh Potato Processing Industry

Morning

- 9:00 Welcome and U of I Orientation, Dr. Ray Prigge  
University Place, Idaho Falls (523-3158)  
9:30 Make up of Idaho Potato Industry, Dr. R.E. Ohms  
10:15 Fruit and Vegetable Inspections - Mr. Lewis E. Hart  
11:00 Supply and Quality for Fresh and Processing,  
Mr. Chuck Schroeder  
  
12:00 Lunch

Afternoon - Storage Utilization and Shipping

- 1:00 Drive to Shelley, Idaho  
1:30 R.T. French Company, Shelley, Idaho, Chuck Schroeder  
4:00 End of day, return to Westbank Hotel

Wednesday, September 21 - University Place, Idaho Falls

Morning

- 8:30 Potato Seed Production - Certification, Dr. Dick Clarke  
9:30 Potato Seed Strategies, Dr. R.E. Ohms  
10:30 Computer Programs for Country Agents, Dr. Joe Guenther  
12:00 Lunch

Afternoon

- 1:30 Potato Harvesting and Storage Structures, Ojala, David South  
4:00 End of Day, return to Westbank Hotel

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Thursday, September 22

Morning

- 8:30 Enroute to Aberdeen
- 10:15 Orientation - Mr. Galen Mc Masters
- 10:30 Producing and maintaining potato quality - Research  
Aberdeen Research Staff
- 12:00 Lunch

Afternoon

- 1:00 Station visit, continued
- 2:30 Lamb Weston Potato Processing Plant Visit, Jim Chapman
- 4:30- Enroute to Little Tree Inn, Pocatello

Friday, September 23 - Potato Equipment for Preventing Handling Losses

Morning

- 8:30- Enroute to American Falls
- 9:30 Unloading, handling and conveying equipment  
Dr. Lynn Johnson, Double R Manufacturing, American Falls
- 10:30 Irrigation - Funk Irrigation
- 11:30- Enroute to Rupert
- 12:30 Lunch

Afternoon

- 1:30 Fresh Potato Packing and Processing  
Roger Jones - Rupert
- 3:00 Enroute to Twin Falls - Snake River Canyon
- 5:00 Holiday Inn, Twin Falls  
1350 North Blue lakes Boulevard  
Telephone: (208) 733-0650

Saturday, September 24 - Rest and shop.

Sunday, September 25 - Tour, Sun Valley, Idaho

Monday, September 26

Morning - Crop Soil and Water Research

8:30 Snake River Research Laboratory - Dr. Gale Kleinkopf

10:30 Snake River Research Laboratory  
Bill Galkin, Agriculture Weather Station  
John Kolar, Bean Research for Quality  
Gale Kleinkopf, Potato Quality Research

12:00 Lunch

Afternoon

1:30 Private Agricultural Science Consultant, Dr. Dale Stukenholz  
Stukenholz Laboratory

5:00 Return to Holiday Inn

Tuesday, September 27 - Snap and Dry Bean Production and Research

Morning

8:30 Idaho Seed Bean Company, Dr. Bill Dean

10:30 Bean seed harvest for quality  
Rogal Quality Seed - Ed McLaughlin

12:00 Lunch

Afternoon

1:30 Bean processing and cleaning  
Rogal Quality Seed - Ed McLaughlin

4:00 End of day, Holiday Inn, Twin Falls

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Wednesday, September 28 - Farm Production: Onions and Carrots

Morning

- 9:00 Quality production, marketing, and controlled storage for onions and carrots  
Jim Nafziger, Wendell
- 12:00 Lunch
- 1:00 Enroute to Boise
- 3:00 Idaho State Seed Laboratory, Mr. Robert Trent
- 5:00 Nendel's Motor Inn, Boise, Idaho  
Capital Boulevard, Telephone: (208) 547-0106

Thursday, September 29 - Vegetable Production for Quality and Loss Prevention  
Parma Experiment Station, Mr. Bill Simpson

Friday, September 30

- 8:30 Fruit Production for Quality and Loss Prevention  
Parma Experiment Station, Mr. Mike Colt
- 12:00 Lunch
- 1:30 Seed Production: Crookham Company, Seed Growers, Dr. Stephen W. Marshall

Saturday, October 1 - Free Day

Sunday, October 2 - 11:00, Travel to Walla Walla, Washington  
Motel: Whitman Motor Inn  
107 North Second, (509) 525-2200

Monday, October 3 - Visit Rogers of Walla Walla Canning Co.  
7th and Rose Street  
Contacts: Mr. Doug Matthews, Mr. David Lewis,  
(509) 525-8390

Morning

- 8:30 Discussion of produce canned, contract canning, and marketing
- 9:00 Plant tour
- 10:30 Visit D & K Frozen Foods, 1164 Dell Avenue, Walla Walla  
Contact: Jim Beal, (509) 525-7890  
Discussions: Contract producers  
Processing  
Marketing
- 11:00 Plant tour
- 12:00 Lunch

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Afternoon, Monday, October 3, continued

1:30 Travel to Pasco, Washington, visit Ice Harbor Dam enroute  
Red Lion Motor Inn, 2525 North 20th Street  
Telephone: (509) 547-0701

Tuesday, October 4

Morning

8:30-  
10:30 Port of Pasco, Big Pasco Industrial Park  
Theron V. Rust, Industrial Development Manager  
Box 769, Pasco, WA - Tel: (509) 547-3378  
Pasco Pacific Inc. - Mr. Ed Davis

11:00 Visit Preston Winery, Tel: (509) 545-1990

12:00 Return to Pasco, Red Lion Inn, Lunch  
Desert Hills Realty, Mr. Richard W. Dockstader  
and Mr. Monty Carlson. Vineyards tour.

Afternoon

2:00 Visit Concord Grape Vineyards  
Fresh juice processing and vineyard management

4:00 New land development and irrigation pumping station

5:00 Enroute to Yakima  
Thunderbird Inn, 1507 North First Street, (509) 248-7850

Wednesday, October 5 - Tour Yakima Valley (Apple production, handling, storage)  
Visit fruit and juice processing plants.

Contact: Mr. A. Brooke Peterson, WSU Cooperative Extension  
Telephone: (509) 575-4218  
Meet at Thunderbird Inn, to accompany tour.

Snokist Growers, Herbert H. Hart  
Treetop, Inc., Selah, Washington - Mr. Jim McCorkindale

Return to Yakima, Thunderbird Inn

Thursday, October 6

Morning - Travel to Spokane, Washington

Afternoon - Visit Grand Coulee Dam.

Discuss power requirement for large processing of perishable crops.

Spokane, Washington - Ridpath Hotel, West 515 Sprague, (509) 838-2711

Friday, October 7 - Spokane, Washington

Contact: Ms. Toby Wolfe, International Food Storage Corporation  
Telephone: (509) 747-5332, home  
455-8523, office

- Morning: Wholesale and retail fruit and vegetable markets, wholesale commodity warehouse
- 9:45 Peirone Produce Co., East 524 Trent, Joe Peirone and Leo Diene  
(Wholesale produce organization)
- 11:00 URM, N. 7511 Freya, Bill Shelby and E. Jean Davis  
Wholesale commodity warehouse
- 12:30 Lunch, Heritage Village Rosauers, N. 9414 Division with company  
of people from URM and Rosauers
- 1:30 Heritage Village Rosauers, retail grocery/supermarket  
Dan A. Whitney
- 3:30 McGregor's/Tidyman's Warehouse Foods, Jim Tidyman, Dennis York,  
Doug Grodt, Produce Supervisor; E. 17515 Appleway, Greenacres,  
WA.  
Another approach for supplying retail stores with fresh  
produce
- 4:30 Travel To Coeur D'Alene, Idaho  
Motel: North Shore Resort Hotel  
115 South Second Street, Telephone: (208) 664-9241

Saturday, October 8

Morning: Coeur D'Alene Lake Tour

Afternoon: Return to Moscow

Sunday, October 9 - Free time

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Postharvest Loss Prevention of  
Perishable Crops, continued  
Page 11

Monday, October 10 - Ag Science, Room 62

Morning

- 8:30 Food Science Technology in Handling and Processing Tropical Crops  
10.00 Dr. Ana Victoria Román, Costa Rica
- 10:00 Coffee Break
- 10:30 Dried Foods as a Nutritional Food Source  
Dr. Larry Branen, UI Food Technologist
- 11:45 Lunch

Afternoon - Ag Engineering Building, Room 107

- 1:30 Ms. Marilyn Swanson and Mr. Kenneth Hoyt  
Recognizing importance of postharvest appropriate technology  
applications for the small farmer  
Solar dryer with supplemental heat source  
Drying of native foods
- Visit dryer in operation and sample dried foods
- 3:00 Coffee and solar dried snacks
- 4:30 End of day

Tuesday, October 11 - Ag Science, Room 62

Morning - Pest Management for Quality Crops

- 8:00 Integrated pest management  
Insects - Dr. Joseph McCaffrey, UI Entomologist
- 9:00 Diseases of perishable crops, Ag Science Room 339  
Dr. A. Helton, UI Plant Scientist
- 10:00 Coffee
- 10:30 Financing and loss protection of perishable crops  
Mr. Steve Berglund, Production Credit Association
- 11:45 Lunch

Afternoon

- 1:30 Fieldtrip - Lewiston, Idaho  
Grain handling and storage, Grain Growers Association  
Marty Anderson
- 5:00 Visit to home of Dr. Richard Ohms

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Postharvest Loss Prevention of  
Perishable Crops, continued  
Page 12

Wednesday, October 12 - Ag Science, Room 62

Morning

- 8:30 Foreign Markets for Perishable Crops  
Mr. Harvey Neese, Agri-Food Systems International, Inc.  
Dr. Ronald Curtis, UI and PIP Ag Economist
- 10:00 Coffee
- 10:30 Foreign markets, continued
- 10:45 Domestic Markets for Perishable Crops  
Dr. Steve Smith, UI Ag Economist
- 11:45 Lunch

Afternoon

- 1:00 Export Market Development  
Mr. Tim Welsh, Idaho Pea and Lentil Commission
- 2:30 Requirements in Developing an Export Market  
Dr. James Jones, UI Ag Economist
- 3:00 Coffee
- 4:30 End of Day

Thursday, October 13 - Role of the Private, Government and University in  
Production of Perishable Crops - Ag Science, Room 62  
Mr. Max Hansen, Director, Idaho Department of Agriculture

Morning

- 8:30 Government and private regulatory agencies  
1. Grower associations (private)  
2. Commissions (government)  
3. Other agencies (government)
- 10:00 Coffee
- 10:30 Role of the Land Grant Universities  
Land grant colleges of agriculture  
Dr. Larry Branen, UI Associate Dean of Resident Instruction
- 11:45 Lunch

Thursday, October 13, continued

Afternoon

- 1:30 Agriculture Research Center (Stations)  
Dr. Lee Bulla - UI Director of Experiment Stations
- 2:30 Agriculture Extension Service  
Dr. Peggy Pletcher, UI District Extension Director
- 3:00 Coffee
- 3:30 Professional Services for Technology Transfer and Outreach  
Agricultural and Extension Education
1. Extension - Community Services, Ms. Corinne Rowe  
UI 4-H Specialist
  2. Vocational Education - Secondary School, Dr. John Slocombe  
UI Ag and Extension Education
  3. Agricultural Education - University B.S., M.S. and Ph.D.  
degree programs, Dr. Doug Pals, UI Ag and Extension Education
- 5:00 End of Day

Friday, October 14

- 8:30 Development and Use of Teaching Aids  
Dr. Lou Reisenberg, UI Agricultural Engineering, Ag Education
- 10:00 Coffee
- 10:15 Summary of postharvest loss prevention of perishable crops  
Dr. Richard Ohms
- 11:00 Evaluation of course
- 6:30pm Banquet and certificate ceremony - Gold Room - SUB  
Speaker: Dr. Raymond J. Miller  
Dean, UI College of Agriculture

Saturday, October 15 - Leave for home