

HOW TO USE THIS PUBLICATION

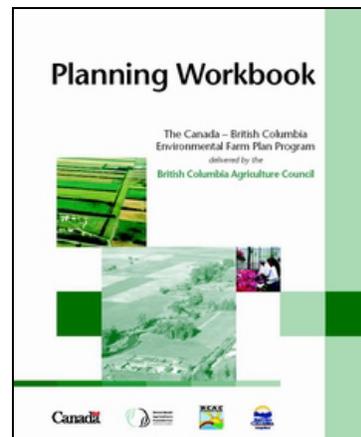
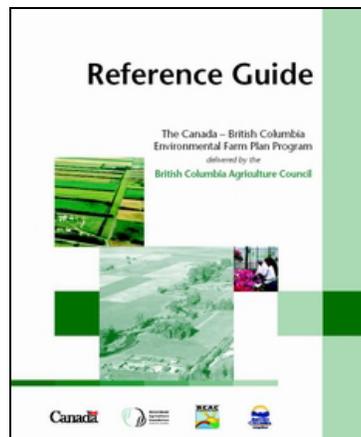
How Does It Fit into My Environmental Farm Plan?

If you have already completed an **Environmental Farm Plan (EFP)**, you may have identified areas of improvement, or questions you were not sure of how to answer for your farm. One of the action items identified in your EFP may have been to complete an **Irrigation System Assessment**.

Ensuring that your irrigation system is operating properly is an integral part of good farm management. However, farms that irrigate also have other issues, such as pesticides, livestock management, fuel storage and building structures that should be addressed under an EFP. To fully evaluate a farm, and to be eligible for funding projects under the EFP, an Environmental Farm Plan should be prepared for the farm.

This publication contains some of the information found in the Water and Climatic Information sections of the EFP Reference Guide and Planning Workbook. If you have already completed an EFP, you may already have addressed many of the issues covered in this publication.

The remainder of this Irrigation System Assessment Guide consists of information and exercises to improve irrigation management on farms. Completing the worksheets at the end of this publication will provide a better understanding of how to meet the crop's water requirements while managing water more efficiently.



Contents of This Publication

Chapters in this Publication

A summary of each chapter in this publication is as follows:

Chapter 1. Introduction to an Irrigation System Assessment

A basic Irrigation System Assessment not only benefits the environment, but also:

- increases farm productivity
- increases in yield and drought resistance
- improves fertilizer use

Chapter 2. Climate

The climate plays an important role in irrigation design and scheduling. The amount of water a crop requires is directly related to the climate. This chapter contains general information on B.C. climate, and on how to gather climate information for a specific farm location.

Chapter 3. Basic Irrigation System Assessment

Basic information on the components of a good Irrigation System Assessment is outlined in this chapter. Examples provided in this chapter show how to easily check if the actual irrigation water use on the farm meets the water required by the crop, and do not exceed the water licence for surface water withdrawal.

Chapter 4. Irrigation System Operational Assessment

Irrigation scheduling using climate and soil moisture monitoring techniques are outlined for both sprinkler and trickle systems.

Appendices

Appendix A. Unit Conversions

Imperial to metric units

Appendix B. Sprinkler and Gun Nozzle Specifications

Information on sprinkler and gun nozzles, pressures, spacings and corresponding application rates can be determined using the tables in this appendix.

Appendix C. Blank Worksheets

This section contains the worksheets that must be completed to meet the requirements of a basic Irrigation System Assessment. These worksheets are blank versions of the examples shown in the various chapters. The worksheets help to summarize the information required in the planning process.

Appendix D. Publications and Websites

The websites and/or organizations where publications and factsheets mentioned throughout this document can be obtained are provided in this appendix.

Appendix E. Glossary

The terminologies used in this document are described in this appendix.

Measurement Convention

Throughout this publication, there is a mix of metric and imperial measurements. Although convention calls for the use of metric units, irrigation presents a special case. Most of the equipment used for irrigation is developed in the United States; therefore, most measurements are in imperial units. In this publication, metric units will be used in most cases; however, to conform to industry standards, water volumes and flow rates may be presented in US gpm and acre-feet first with metric units in brackets. Check to ensure you are using the correct units when using the worksheets.

For all units used in this publication, a list of conversions from imperial to metric units is shown in Appendix A.

Acronyms

Commonly used acronyms in this publication are:

AWSC	=	Available Water Storage Capacity [in/ft or mm/m]
CID	=	Certified Irrigation Designer
DU	=	Distribution Uniformity [%]
EC	=	Electrical Conductivity [dS/m]
EFP	=	Environmental Farm Plan
ET	=	Evapotranspiration [mm/day or in/day]
IIABC	=	Irrigation Industry Association of British Columbia
LWBC	=	Land and Water British Columbia Inc.
MAFF	=	B.C. Ministry of Agriculture, Food and Fisheries
MSWD	=	Maximum Soil Water Deficit [mm or in]
MWLAP	=	B.C. Ministry of Water, Land and Air Protection
SAR	=	Sodium Adsorption Ratio [dimensionless]

What the Colours Represent

Tables

Sorted data or information is tabulated.

Equations

Worksheet 15

On the right of the equation bar, reference is made to the worksheet number where the Equation will be used.

Assessments

Step-by-step procedures for performing a check and/or assessment are provided.

Examples

This publication provides information on sprinkler and trickle/drip systems (Refer to the B.C. Irrigation Management Guide for information on other irrigation systems). The examples and/or worksheets will indicate which type of system is being evaluated by using the following symbols:



Sprinkler System



Trickle/Drip System

Actions

If the results from a check and/or assessment indicate the system has problems, actions items are provided that may be used to help remediate the situation.

Case Studies

Scenarios are provided to help explain how an action item may be applied to resolve problematic situations.

Reference Information

Reference information is included within the text in each chapter. The following symbols indicate that reference information is available:

in other publications,



B.C. Sprinkler Irrigation Manual

in the world wide web, or



www.farmwest.com

within this document.



Assessment of Water Quality, Chapter 3