

Estrus Synchronization Planner Spreadsheet Helps Beef Producers Implement Artificial Insemination Programs

Abstract

A survey was developed to assess use of the Estrus Synchronization Planner and familiarity of beef artificial insemination users with recommended protocols. A link to an online survey was sent to individuals who had downloaded the tool. More than 97% of respondents were familiar with the recommended protocols, and 85% used these recommendations to select a protocol. A majority of users agreed that the tool was reaching education and facilitation goals. Feedback from the survey will be used to improve future versions. Additional promotion and Extension training materials are needed to increase use of the tool.

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Introduction

The science of synchronization of estrus and ovulation in beef females has made great strides (Patterson, Kojima, & Smith, 2003). Several protocols that allow producers to precisely schedule insemination of groups of females are available for fixed-time insemination in heifers (Patterson, Thomas, & Smith, 2013) and cows (Lamb, 2013). At times during the development cycle, industry users have been overwhelmed by the choices and rapid changes in the knowledge base. A multi-state team of Extension reproductive physiologists (Beef Reproduction Task Force) with the support of a broader industry group (veterinarians, AI companies, and allied industry) developed a short list of recommended protocols to improve communication about synchronization systems and improve success with the technology (Johnson et al., 2011). As a result of these efforts, uniform protocol recommendations can be found in the catalogs of the major AI studs and at www.BeefRepro.info.

Extensive research and field trial data support the use of these protocols as described (Lamb, 2013; Patterson, Thomas, & Smith, 2013). The recommendations are updated annually to incorporate the most recent research. For a majority of producers, selecting a protocol from this list should improve the chances of a good response. Other protocols may work, but they often involve additional steps and costs with no improvement in response.

Development

Implementing protocols to synchronize estrus and ovulation requires adhering to the protocol, especially in timing each step. In 1998, an Excel-based planning tool known as the Estrus Synchronization Planner was developed by Daryl Strohbehn, retired Extension beef specialist at Iowa State University, to help producers implement synchronization programs successfully. The original planner had six basic synchronization systems and was available from Strohbehn free upon request via e-mail or CD. Additional systems and program refinements were made when Mark Dikeman and Garland Dahlke joined the Iowa Beef Center. It was available for free download on the Iowa Beef Center website from about 2001 through 2004. Efforts to update the Estrus Synchronization Planner to reflect recommendations from the Beef Reproduction Task Force took place in 2004. This significantly revised version with extensive support material was available for \$25 and met cost recovery goals from Iowa State University. Yearly updates were made to the program, and cost remained the same until 2011, at which time sufficient industry support had been developed by the Task Force to offer the program as a free download (http://www.iowabeefcenter.org/estrus_synch.html). Use of the planner increased significantly with this change. The planner guides users to appropriate protocols and translates selections into dates and times on a calendar based on user inputs. Other online tools were developed to help with scheduling, but they lacked accuracy in correct application of protocols or were not kept up-to-date with current research.

The Beef Reproductive Task Force has held one to three meetings around the country for the past 12 year to help educate producers on best management practices for implementing synchronization protocols and improving reproductive response. While feedback at the time of the meeting has always been high, further effort was needed to ascertain actual use and helpfulness of these tools by producers.

Survey of Planner Use

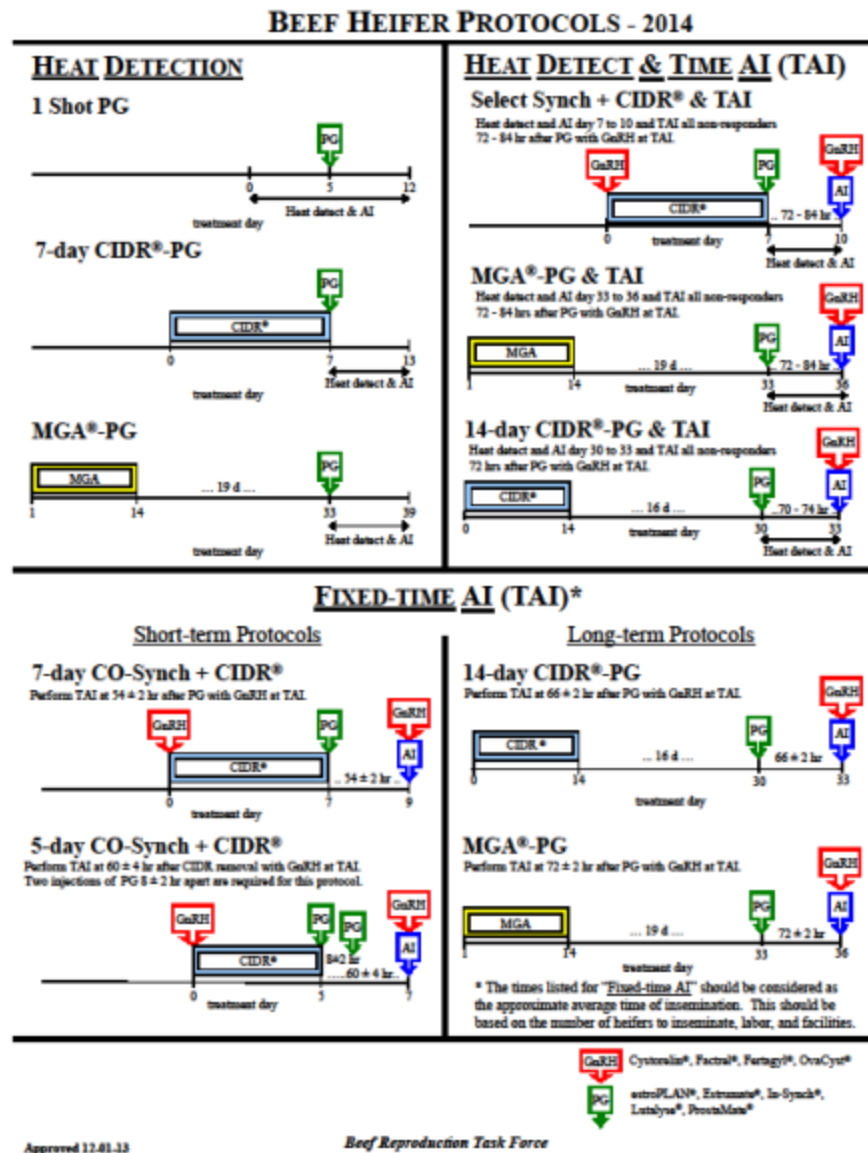
An online survey was chosen as a cost-effective and convenient means (West, 2007) to obtain feedback on the tools developed. A link to the online survey was sent to email addresses of those who registered with the Iowa Beef Center when they downloaded the Estrus Synchronization Planner tool from the website. In addition, a link to the survey was promoted through electronic Extension publications, contact lists, and cooperating news media. Of the 425 completed surveys, 156 had downloaded and used the planner. Users of the planner represented 33 states, and nine of those states had five or more users.

The survey showed an image of the recommended protocols for heifers (Figure 1) and asked respondents if they were familiar with the protocol sheets found in major sire catalogs. A majority of respondents (97%) indicated "yes." When asked "do you or have you used the protocol sheets to select a synchronization protocol?" recommendations from these guidelines were generally used by 65%, sometimes or occasionally used by 20% of respondents, and not used by 15%.

Survey results provide strong evidence that the efforts of the multi-state Extension group to promote a uniform set of guidelines was recognized and used by producers. While beef management practices

and challenges vary widely across the country, the basic physiology of the animal does not change, making this a good area for Extension specialists to partner to greater leverage their message. Other multi-state efforts have focused on enhanced producer education of current research (Kandel, Ransom, Torgerson, & Wiersma, 2010) or preventing disease resistance (Wyenandt & Maxwell, 2011). Strong industry, producer, and academic input and coordination are common links in these efforts and provide a good model for shrinking Extension resources.

Figure 1.
Recommended Protocols for Synchronization of Estrus in Beef Heifers



The planner was used frequently by 47% of respondents, three to five times by 17%, and one to two times by 36%. A Likert scale was used to assess level of agreement with several statements regarding objectives in planner use and design. Statements and associated responses are shown in Table 1.

Table 1.

Respondent Ratings of Statements About the Estrus Synchronization Planner

Survey Statement	Strongly Agree	Agree	Moderately Agree	Disagree	Strongly Disagree
Planner has been easy to use	55%	25%	12%	4%	4%
Planner makes scheduling easier	54%	22%	21%	2%	5%
Planner has reduced errors in implementing protocols	42%	26%	20%	6%	6%
Planner helped to improve communication with those involved in the breeding project	46%	26%	16%	6%	6%
Planner helped to find the most cost effective protocol for our situation	28%	22%	36%	9%	5%
Planner helped to achieve more timely planning and preparation for breeding	48%	24%	17%	5%	5%
Planner helped to direct us to a more appropriate protocol	30%	26%	27%	11%	6%

The survey also asked for ways to improve the program. These comments combined with responses in Table 1 will be used to make changes in subsequent versions. Specifically, the tool will be adapted to allow product names to be selected and added to output. Although users with experience using Excel find the program easy to use, feedback from others made it clear that more training materials would help compensate for the wide range in end-users' computer skills.

The most common way that survey respondents learned about the planner was through an Internet search (33%). Other methods included introduced at a meeting (18%), industry publication (14%), Extension publication (14%), word of mouth (11%), other (8%), industry representative (2%), and veterinarian (1%). Similarly, Vergot, Israel, and Mayo, (2005) reported beef producers used a broad range of channels to receive information.

Conclusions

Survey data showed high user awareness of the multi-state Extension effort to provide a uniform set of

recommendations for research-based protocols for synchronization of estrus and ovulation. The planning tool has been well received, but continued work is needed to make it more user-friendly. Additional Extension efforts are needed to increase user awareness of the availability of the tool and how to use it. Increased Internet and social media presence as well as traditional Extension education programs to producers, veterinarians, and technicians are warranted.

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