



**American Society of
Agricultural and Biological Engineers**

**S
T
A
N
D
A
R
D**

ASABE is a professional and technical organization, of members worldwide, who are dedicated to advancement of engineering applicable to agricultural, food, and biological systems. ASABE Standards are consensus documents developed and adopted by the American Society of Agricultural and Biological Engineers to meet standardization needs within the scope of the Society; principally agricultural field equipment, farmstead equipment, structures, soil and water resource management, turf and landscape equipment, forest engineering, food and process engineering, electric power applications, plant and animal environment, and waste management.

NOTE: ASABE Standards, Engineering Practices, and Data are informational and advisory only. Their use by anyone engaged in industry or trade is entirely voluntary. The ASABE assumes no responsibility for results attributable to the application of ASABE Standards, Engineering Practices, and Data. Conformity does not ensure compliance with applicable ordinances, laws and regulations. Prospective users are responsible for protecting themselves against liability for infringement of patents.

ASABE Standards, Engineering Practices, and Data initially approved prior to the society name change in July of 2005 are designated as "ASAE", regardless of the revision approval date. Newly developed Standards, Engineering Practices and Data approved after July of 2005 are designated as "ASABE".

Standards designated as "ANSI" are American National Standards as are all ISO adoptions published by ASABE. Adoption as an American National Standard requires verification by ANSI that the requirements for due process, consensus, and other criteria for approval have been met by ASABE.

Consensus is established when, in the judgment of the ANSI Board of Standards Review, substantial agreement has been reached by directly and materially affected interests. Substantial agreement means much more than a simple majority, but not necessarily unanimity. Consensus requires that all views and objections be considered, and that a concerted effort be made toward their resolution.

CAUTION NOTICE: ASABE and ANSI standards may be revised or withdrawn at any time. Additionally, procedures of ASABE require that action be taken periodically to reaffirm, revise, or withdraw each standard.

Copyright American Society of Agricultural and Biological Engineers. All rights reserved.

ASABE, 2950 Niles Road, St. Joseph, MI 49085-9659, USA, phone 269-429-0300, fax 269-429-3852, hq@asabe.org

Determining Cutting Width and Designated Mass of Disk Harrows

Proposed by the Disk Harrow Standardization Subcommittee of the ASAE Cultural Practices Equipment Committee; approved by the ASAE Power and Machinery Division Technical Committee; adopted by ASAE June 1965; reconfirmed December 1970, December 1975; revised June 1976; reaffirmed December 1981, December 1986, December 1991, December 1996, December 1997, February 2003; revised December 2004; reaffirmed January 2010; December 2014.

Keywords: Disk, Harrows, Tillage

1 Purpose and Scope

1.1 The purpose of Section 2 of this Standard is to establish a uniform method for calculating the cutting width of disk harrows, to be used for purposes such as advertising brochures and operator manual specifications. This standard determines the cutting width for the following types of disk harrows:

- 1.1.1** Single disk harrows
- 1.1.2** Tandem disk harrows
- 1.1.3** Double offset disk harrows
- 1.1.4** Offset disk harrows

1.2 The purpose of Section 3 of this Standard is to establish a standard method for designating the mass of disk harrows.

1.3 The definitions for the types of disk harrows are provided in ASAE S414.1, Terminology and Definitions for Agricultural Tillage. The cutting width formulas in Section 2 may not apply directly if the disk configuration is different than one of the disk types listed in Section 1.1.

2 Cutting Width

2.1 Cutting width is to be expressed in meters (feet). The cutting width formulas are based on an 18 degree gang angle and 10 cm (4 inch) cutting depth. The formulas can be used to determine cutting width of disk harrows with gang angles from 14 to 22 degrees with minimal error. The formulas assume that there is a space between adjacent gangs. Factors used in the formulas account for the space between adjacent gangs as well as depth and angle of the outer most cutting blades.

Cutting blades are defined as disk blades whose primary purpose is to cut and mix soil and crop residue. The cutting width should not include additional blades that may be used to extend the rear gangs, primarily for the purpose of leveling and feathering the soil. Typically, the number of cutting blades on the rear disk gangs equals the number of blades on the front gangs (provided the same blade spacing is used on front and rear disk gangs).

2.1.1 The cutting width for single disk harrows shall be determined by the formula:

$$\text{Cutting width, meters} = [0.95 (N - 2) S + 0.3D] / 100$$