

# CATALOGO DE LOS DIPTERA DE NICARAGUA. 10. CECIDOMYIIDAE (NEMATOCERA).

Por Jean-Michel Maes.\*

## Resumen.

Este catálogo presenta las 8 especies de Cecidomyiidae (Diptera : Nematocera) reportadas de Nicaragua. Para cada especie se cita la sinonimia, la distribución geográfica, los hospederos y los enemigos naturales. La bibliografía conocida está agregada.

## Abstract.

This catalogue presents the 8 species of Cecidomyiidae (Diptera : Nematocera) reported from Nicaragua. The geographical distribution, synonyms, hosts and natural enemies are given for each species. A bibliography of the Nicaraguan species is included.

\* Museo Entomológico, S.E.A., A.P. 527, León, Nicaragua.

## **Introducción.**

Los Cecidomyiidae son Diptera Nematocera de tamaño pequeño, más conocidos por las agallas que producen sobre las plantas que por los insectos en sí. Los adultos son zancuditos muy pequeños, delicaditos, con patas y antenas largas. Las venas del área costal son fuertes, las demás, cuando existen son delgadas. Las larvas de la mayoría de las especies producen agallas en las plantas, las otras son fitófagas (algunas viven en agallas producidas por otros insectos) y algunas son saprófagas (ejemplo los Lestermiinae). Algunas especies son depredadoras de áfidos, escamas e insectos pequeñitos. Las larvas son gusanitos delgaditos con una marca en forma de T sobre el lado ventral del protórax. Son de coloración amarilla, anaranjada, roja o rosada. Las agallas producidas pueden ocurrir sobre cualquier parte de la planta y pueden tener muchas formas diferentes pero por una especie solo existe un tipo de agalla, siempre situado en el mismo lugar de una planta dada. Existe el fenómeno de paedogénesis en algunas especies saprófagas, la larva es capaz de producir ovarios fértiles y dar crianza de tipo "viviparidad haemocélica". Algunas especies son plagas de importancia económica, la principal en Nicaragua es *Contarinia sorghicola* que ataque el sorgo. Los Cecidomyiidae de Nicaragua son agrupados en dos sub familias : Lestermiinae y Cecidomyiinae. Los Cecidomyiinae tienen los tarsos con 5 artejos, el primero siendo más corto que el segundo. Los Lestermiinae tienen menos de 5 artejos en los tarsos o si no el primero es más largo que el segundo.

## **Especies de Nicaragua.**

### **I. Sub familia LESTERMIINAE.**

*Anarete* sp.

Distribución : Nicaragua (León).

G. sp.

Distribución : Nicaragua (León).

### **II. Sub familia CECIDOMYIINAE.**

*Asphondylia altani* FELT 1915.

Distribución : Nicaragua (Carazo: San Marcos: typus).

*Asphondylia* sp.

Distribución : Nicaragua.

*Camptoneuromyia* sp.

Distribución : Nicaragua (León).

*Cecidomyia* sp.

Distribución : Nicaragua (Esteli).

Fitófago : Pinaceae : *Pinus*.

*Clinodiplosis* sp.

Distribución : Nicaragua (León).

ex botones florales de Bignoniaceae : *Crescentia*.

*Contarinia sorghicola* (COQUILLETT) 1899.

mosquita del sorgo, sorghum midge, jowar midge, mosca del sorgo,  
sorgo, vaneador, mosquito del sorgo.

mosca del ovario del

= *Diplosis sorghicola* COQUILLETT 1899.

= *Contarinia palposa* BLANCHARD 1958.

Distribución : Europa, Asia, Africa, USA, Puerto Rico, Cuba, Curacao,

Trinidad, Dominica,

Is.Vírgenes, St.Vincent, México, El Salvador,

Nicaragua (León, Managua), Costa Rica, Colombia,

Venezuela, Perú, Brasil, Argentina.

Fitófago : Poaceae : *Sorghum*.

Enemigos naturales :

Acarida.

Araneida.

Odonata.

Heteroptera.

PLA. Chrysopidae.

COL. Coccinellidae.

DIP. Ceratopogonidae.

HYM. Eulophidae : *Aprostocetus diplosidis*.

*Tetrastichus venustus*.

*Tetrastichus blastophagi*.

Eupelmidae : *Eupelmus* sp.

Braconidae.

Formicidae : *Tapinoma indicum*.

*Neolasioptera* sp.

Distribución : Nicaragua (León).

*Prodiplosis* sp. nov. (2 spp.).

Nicaragua (León).

Ex flores y botones florales de Bignoniaceae : *Crescentia*.

## Agradecimientos.

Agradezco aqui al Dr. Raymond J. Gagne del Systematic Entomology Laboratory de la U.S.D.A. c/o U.S. National Museum de Washington, por la ayuda en la identificación de los especímenes y la revisión del texto.

## Bibliografía.

**AMAYA N.I.A.M.** (1973) La mosca del ovario del sorgo y su control. ICA, Dept. Agronomia, Hoja Divulg., 13:2pp.

**Anónimo** ( ) Guía de control integrado de plagas en maíz y sorgo. MIDINRA/FAO, Nicaragua.

**BALL C.R. & HASTINGS S.N.** (1912) Grain sorghum production in the San Antonio region of Texas. USDA Bur. Pl. Ind. Bull., 237:12-25.

**BARNES H.F.** (1930) On some factors governing the emergence of gall midges (Cecidomyiidae: Diptera). Proc. Zool. Soc. London, I:381-393.

**BAXENDALE F.P.** (1980) Diapause termination, overwintering emergence and the seasonal abundance of the sorghum midge, *Contarinia sorghicola* (Coquillett) and its parasites. M.S. Thesis, Texas A&M Univ., College Station, 177pp.

**BAXENDALE F.P.** (1983) Modeling seasonal development of the sorghum midge, *Contarinia sorghicola* (Coquillet). Ph.D. Diss., Texas A&M Univ., College Station.

**BAXENDALE F.P., LIPPINCOTT C.L. & TEETES G.L.** (1983) Biology and seasonal abundance of hymenopterous parasitoids of sorghum midge (Diptera: Cecidomyiidae). Env. Ent., 12:871-877.

**BAXENDALE F.P. & TEETES G.L.** (1983) Factors influencing adult emergence from diapausing sorghum midge, *Contarinia sorghicola* (Diptera: Cecidomyiidae). Env. Ent., 12(4):1064-1067.

**BAXENDALE F.P. & TEETES G.L.** (1983) Thermal requirement for emergence of overwintered sorghum midge (Diptera: Cecidomyiidae). Env. Ent., 12:1078-1082.

**BAXENDALE F.P., TEETES G.L. & SHARPE P.J.H.** (1984) Temperature- dependent model for sorghum midge (Diptera: Cecidomyiidae) spring emergence. Env. Ent., 13:1566-1571.

**BAXENDALE F.P., TEETES G.L., SHARPE P.J.H. & WU H.** (1984) Temperature- dependent model for development of non diapausing sorghum midge (Diptera: Cecidomyiidae). Env. Ent., 13:1572-1576.

**BECERRA M.I., TEETES G.L. & PETERSON G.C.** (1984) Combined effects of sorghum midge resistant hybrids and

- insecticidal control. *Sorghum News*l., 27:99-100.
- BECERRA M.I.** (1985) Combined effect of resistant sorghum and insecticidal control on damage by sorghum midge (Diptera: Cecidomyiidae). M.S. Thesis, Texas A&M Univ., College Station.
- BERQUIST R.R., ROTAR P. & MITCHELL W.C.** (1974) Midge and anthracnose head blight resistance in sorghum. *Trop. Agric.*, 51:431-535.
- BLANCHARD E.E.** (1958) *Contarinia palposa* sp. nov., parasita del sorgo granífero. *Rev. Invest. Agr.*, 12:423-425.
- BOTTRELL D.G.** (1971) Entomological advances in sorghum production. *Tex. Agric. Exp. Stn. Consolid.*, PR-2940:28-40.
- BOWDEN J. & NEVE R.A.** (1953) Sorghum midge and resistant varieties in the Gold Coast. *Nature*, 172:551.
- BOWDEN J.** (1965) Sorghum midge, *Contarinia sorghicola* (Coq.), and other causes of grain sorghum loss in Ghana. *Bull. Ent. Res.*, 56:169-189.
- CALLAN E. Mac C.** (1941) Some economic aspects of the gall midges (Diptera, Cecidomyiidae) with special reference to the West Indies. *Trop. Agric.*, 17:63-66.
- CALLAN E. Mac C.** (1945) Distribution of the sorghum midge. *J. Econ. Ent.*, 38:719-720.
- CERMEÑO L.G.F., GALVAN V.R. & LOBATON G.V.** (1984) Ciclo de vida y fluctuación poblacional diaria y estacional de la mosquita del ovario *Contarinia sorghicola* (Coquillett) (Diptera: Cecidomyiidae). *Rev. Colombiana Ent.*, 10(3-4):15-19.
- COQUILLET D.W.** (1899) A cecidomyiid injurious to seeds of sorghum. *USDA Div. Ent. Bull.*, 18:81-82.
- COWLAND J.W.** (1936) The sorghum midge in the Anglo-Egyptian Sudan. *Ann. Appl. Biol.*, 23:110-113.
- CRAWFORD J.C.** (1907) New North American Hymenoptera. *Jl. N.Y. Ent. Soc.*, 15:177-181.
- DAREKAR K.S. & TALGERI G.M.** (1977) Studies on biology and habits of sorghum midge (*Contarinia sorghicola* Coquillett). *Pesticides*, XI:37-39.
- DEAN W.H.** (1910) Some notes upon the life history and habits of the sorghum midge. *J. Econ. Ent.*, 3:205-207.
- DEAN W.H.** (1911) The sorghum midge. *USDA Ent. Bull.*, 85:39-58.
- DOGGETT H.** (1970) *Sorghum*. Longmans, Green and Co., London.
- FELT E.P.** (1915) New genera and species of gall midges. *Proc. U.S. Nat. Mus.*, 48:195-211.
- FISHER K.S. & WILSON G.L.** (1975) Studies of grain production in *Sorghum bicolor* (L.) Moench. III. The relative importance of assimilate supply, grain growth capacity and transport system. *Aust. J. Agric. Res.*, 26:11-23.
- FISHER K.S., WILSON G.L. & DUTHIE I.** (1976) Studies of the grain production in *Sorghum bicolor* (L.) Moench. VII. Contribution of plant parts to canopy photosynthesis and grain yield in field stations. *Aust. J. Agric. Res.*, 27:235-242.
- FISHER R.W.** (1981) Adult emergence and oviposition of the sorghum midge, *Contarinia sorghicola* (Coquillett), in relation to abiotic environmental influences. M.S. Thesis, Texas A&M Univ., College Station, 86pp.
- FISHER R.W., TEETES G.L. & BAXENDALE F.P.** (1982) Effects of time of day and temperature on sorghum midge emergence and oviposition. *Tex. Agric. Exp. Stn.*, PR-4029:8pp.
- FISHER R.W. & TEETES G.L.** (1982) Effects of moisture on sorghum midge (Diptera: Cecidomyiidae) emergence.

Env. Ent., 11:946-948.

**GABLE C.H., BAKER W.A. & WOODRUFF L.C.** (1928) The sorghum midge, with suggestion for control. USDA Farm. Bull., 1566.

**GAGNE R.J.** (1968) A catalogue of the Diptera of the Americas south of the United States. 23. Family Cecidomyiidae. Dept. Zool., Secr. Agric. Sao Paulo, 62pp.

**GEERING Q.A.** (1953) The sorghum midge, *Contarinia sorghicola* (Coq.), in East Africa. Bull. Ent. Res., 44:363-366.

**HALLMAN G.J.** (1982) Relationship of sorghum midge, *Contarinia sorghicola* (Coquillett), density and damage to resistant and susceptible hybrids. PhD Diss., Texas A&M Univ., College Station.

**HALLMAN G.J. & TEETES G.L.** (1984) Diapause of the sorghum midge in two resistant and one susceptible sorghum hybrids in Texas in 1981. Sorghum News., 27:98.

**HALLMAN G.J., TEETES G.L. & JOHNSON J.W.** (1984) Relationship of sorghum midge (Diptera: Cecidomyiidae) density to damage to resistant and susceptible sorghum hybrids. J. Econ. Ent., 77:83-87.

**HALLMAN G.J., TEETES G.L. & JOHNSON J.W.** (1984) Weight compensation of undamaged kernels in response to damage by sorghum midge (Diptera: Cecidomyiidae). J. Econ. Ent., 77:1033-1036.

**HARDING J.A.** (1965) Ecological and biological factors concerning the sorghum midge during 1964. Tex. Agr. Exp. Sta. Misc. Publ., MP-773:10pp.

**HARDING J.A. & HOGG P.W.** (1966) Overwintering of the sorghum midge on the plains of Texas. Tex. Agr. Exp. Stn., PR-2432:6pp.

**HARRIS K.M.** (1961) The sorghum midge, *Contarinia sorghicola* (Coq.) in Nigeria. Bull. Ent. Res., 52:129-146.

**HARRIS K.M.** (1964) The sorghum midge complex (Diptera, Cecidomyiidae). Bull. Ent. Res., 55:233-247.

**HARRIS K.M.** (1969) The sorghum midge. Wld. Crops, 21:176-179.

**HARRIS K.M.** (1970) The sorghum midge. PANS, 16:36-42.

**HARRIS K.M.** (1984) The sorghum midge: a review of published information, 1895-1983. En Int. Sorghum Ent. Workshop, Texas A&M Univ., College Station, p.543.

**HERNANDEZ F.** (1972) Algunas observaciones sobre biología, ecología y control de la mosquita del sorgo *Contarinia sorghicola* Coq. en el Valle de Culiacan. Agricultura Técnica de México, 3(3):102-114.

**HOELSCHER C.E. & TEETES G.L.** (1981) Insect and mite pests of sorghum management approaches. Tex. Agric. Exp. Ser. Pub., B-1220:24pp.

**JOHNSON J.W., ROSENOW D.T., MILLER F.R. & SCHERTZ K.R.** (1971) Sorghum breeding and improvement. En Grain sorghum research in Texas - 1970. Tex. Agric. Exp. Sta. Consol., P.R.-2938-2949:46-57.

**JOHNSON J.W., ROSENOW D.T. & TEETES G.L.** (1973) Resistance to the sorghum midge in converted exotic sorghum cultivars. Crop. Sci., 13:754-755.

**JOHNSON J.W., TEETES G.L., ROSENOW D.T., WISEMAN B.R. & PHILLIPS J.M.** (1982) Registration of 28 midge resistant sorghum germoplasm lines. Crop. Sci., 22:1273.

- KARANJKAR R.R. & CHUNDURWAR R.D.** (1978) Losses to jowar cob in relation to adult midge population. *Sorghum Newsl.*, 21:55-56.
- LIMONTI M.R. & VILLATA C.A.** (1980) Forma de detectar la presencia de la "mosquita del sorgho" *Contarinia sorghicola* (Coquillett) y medidas para su control. Instituto Tec. Agrop. Divulgación Tec., Manfredi, Argentina, 5.
- LIPPINCOTT C.L. & TEETES G.L.** (1983) Biology and nature of parasitism of hymenopterous parasitoids of sorghum midge. *Tex. Agric. Exp. Sta.*, PR-4146.
- MARTINS A.J.** (1977) Influencia do teor de tanino en genotipos de sorgo, *Sorghum bicolor* (L.) Moench, sobre o ataque da *Contarinia sorghicola* (Coquillett, 1898) (Dip., Cecidomyiidae). MS Thesis, Univ. Fed. Ceara, Fortaleza.
- MELTON K.D.** (1982) Effects of resistant sorghum hybrids on the biology of the sorghum midge, *Contarinia sorghicola* (Coquillett). M.S. Thesis, Texas A&M Univ., College Station.
- MELTON K.D. & TEETES G.L.** (1984) Effects of resistant sorghum hybrides on sorghum midge (Diptera: Cecidomyiidae) biology. *J. Econ. Ent.*, 77:626-631.
- MONTOYA E.L.** (1965) Bionomics and control of the sorghum midge *Contarinia sorghicola* (Coquillett). Texas A&M Univ., MS Thesis.
- NEWELL W. & BARBER T.C.** (1913) The argentine ant. *USDA Bur. Ent. Bull.*, 122.
- OJEDA D.** (1967) *Contarinia sorghicola* Coquillett (Dip. Cecidomyiidae) una nueva plaga para el sorgo en Perú. *Rev. Perúana Ent. Agric.*, 10(9):40-43.
- OVERMAN J.L.** (1975) Some perspectives on insect problems of sorghum in Brazil. *Int. Sorghum Workshop*, Univ. Puerto Rico, Mayaguez, pp.322-329.
- PAGE F.D.** (1979) Resistance to sorghum midge *Contarinia sorghicola* (Coquillett) in grain sorghum. *Aust. J. Exp. Agric. Anim. Husb.*, 19:97-101.
- PAINTER R.H.** (1958) Resistance of plants to insects. *Ann. Rev. Ent.*, 3:267-290.
- PASSLOW T.** (1965) Bionomics of sorghum midge (*Contarinia sorghicola* (Coq.)) in Queensland, with particular reference to diapause. *Queensl. J. Agric. Anim. Sci.*, 22:149-167.
- PASSLOW T.** (1973) Insect pest of grain sorghum. *Queensl. Agric. J.*, 99:620-628.
- PETRALIA R.S., WUENSCHE A.L., TEETES G.L. & SORENSEN A.A.** (1979) External morphology of the mouthparts of larvae of sorghum midge, *Contarinia sorghicola*. *Ann. Ent. Soc. Am.*, 72:850-855.
- PITRE H.M., ROTH J.P. & GOURLEY L.M.** (1975) The sorghum midge in Mississippi. *Miss. Agric. Forestry Exp. Stn. Bull.*, 836:13pp.
- PRIORE R. & VIGGIAN G.** (1965) *Contarinia sorghicola* Coq. (Diptera, Cecidomyiidae) and its parasites in Italy. *Boll. Lab. Ent. Agric. Filippo Silvestri*, 23:1-36.
- REYES R. & ANDREWS K.L.** (1979) Evaluación de insecticidas para el control de la mosquita de la panoja *Contarinia sorghicola* Coq. en sorgo. Res. XXV Reunion An. PCCMCA, Tegucigalpa, Honduras, 16pp.
- ROGERS C.E.** (1977) Hosts and parasitoids of the Cecidomyiidae (Diptera) in the Rolling Plains of Texas. *J. Kans. Ent. Soc.*, 50(2):179-186.

- ROSSETTO C.J.** (1977) Tipos de resistencia de sorgo, *Sorghum bicolor* (L.) Moench, a *Contarinia sorghicola* (Coquillet, 1898). Thesis, Univ. Est. Paulista "Julio de Mesquita Filho", Jaboticabal.
- ROSSETTO C.J.** (1983) Heranca da resistencia da veriedade de sorgo AF-28 a *Contarinia sorghicola* (Coquillet). *Bragantia*, 42:211-219.
- ROSSETTO C.J., GONCALVES W. & DINIZ J.C.M.** (1975) Resistencia de AF-28 a mosca do sorgo, *Contarinia sorghicola*, na ausencia de outras variedades. *Anais Soc. Ent. Brasil*, 4:16-20.
- ROTH J.P. & PITRE H.N.** (1975) Seasonal incidence and host plant relationships of the sorghum midge in Mississippi. *Ann. Ent. Soc. Am.*, 68:654-658.
- SANTOS J.H.R. & CARMO C.M.** (1974) Evaluation of resistance to *Contarinia sorghicola* by sorghum lines from Cameron, Africa, collection in Ceara, Brasil. *Sorghum Newsl.*, 17:10-11.
- SAUNDERS J.L., KING A.B.S. & VARGAS C.L.S.** (1983) Plagas de cultivos en America Central. CATIE, Costa Rica.
- SESHU REDDY K.V. & DAVIES J.C.** (1979) Pests of sorghum and pearl millet, and their parasites and predators recorded at ICRISTAT Center, India up to august 1979. *Dept. Prog. Rept.*, 2:21-22.
- STEPHENS J.C., MILLER F.R. & ROSENOW D.T.** (1967) Conversion of alien sorghums to early combine genotypes. *Crop. Sci.*, 7:396.
- SUMMERS C.G.** (1975) Daily adult emergence in the sorghum midge, *Contarinia sorghicola*. *Env. Ent.*, 4:495-498.
- TALEY Y.M., DEORE B.P. & THAKAKE K.R.** (1971) Bionomics of *Contarinia sorghicola* Coquillet (Diptera: Cecidomyiidae). *Ind. J. Ent.*, 33:202-208.
- TALEY Y.M. & GARG D.O.** (1976) *Tapinoma indicum* Forel (Formicidae: Hymenoptera) a new predatory and of jowar midge, *Contarinia sorghicola* (Cecidomyiidae: Diptera). *Cecidologia Indica*, 11:77-79.
- TEETES G.L.** (1975) Insect resistance and breeding strategies in sorghum. Proc. 30 th. Ann. Corn Sorghum Res. Conf., pp.32-48.
- TEETES G.L. & JOHNSON J.W.** (1978) Insects resistance in sorghum. En Proc. 33th Ann. Corn Sorghum Res. Conf., Chicago, Ill., pp.167-189.
- TEETES G.L.** (1979) Overview of pest management and host plant resistance in U.S. sorghums. En HARRIS M.K. Biology and breeding for resistance to arthropods and pathogens in agricultural plants. Texas Agric. Exp. Sta., Texas A&M Univ. System, College Station, pp.181-223.
- TEETES G.L.** (1980) Breeding sorghums resistant to insects. En MAXWELL F.G. & JENNINGS P.R. Breeding plants resistant to insects. J. Wiley & Sons, N.Y., pp.457-485.
- TEETES G.L.** (1982) Sorghum insect pest management. En HOUSE L.R., MUGHOGHO L.K. & PEACOCK J.M. Sorghum in the eighties. ICRISTAT, Anghra Pradesh, India.
- TEETES G.L.** (1985) Insect resistant sorghums in pest management. *Insect. Sci. Applic.*, 6(3):443-451.
- TEETES G.L., BECERRA M.I. & PETERSON G.C.** (1986) Sorghum midge (Diptera: Cecidomyiidae) management with resistant sorghum and insecticide. *J. Econ. Ent.*, 79:1091-1095.

- THOMAS J.G.** (1969) The sorghum midge and its control. Tex. Agr. Ext. Serv. Fact. Sheet, L-842:4pp.
- THOMAS J.G. & CATE J.R.** (1971) The sorghum midge and its control. Tex. Agr. Exp. Stn. Prog. Rep., 2863.
- WALTER E.V.** (1941) The biology and control of the sorghum midge. USDA Tech. Bull., 119:25pp., 778:26pp.
- WAQUIL J.M., TEETES G.L. & PETERSON G.C.** (1984) Oviposition behaviour of sorghum midge on resistant and susceptible sorghum hybrids. Sorghum Newsl., 27:95.
- WAQUIL J.M., TEETES G.L. & PETERSON G.C.** (1986) Adult sorghum midge (Diptera: Cecidomyiidae) nonpreference for a resistant hybrid sorghum. J. Econ. Ent., 79:455-458.
- WAQUIL J.M., TEETES G.L. & PETERSON G.C.** (1986) Sorghum midge (Diptera: Cecidomyiidae) adult ovipositional behavior on resistant and susceptible sorghum hybrids. J. Econ. Ent., 79:530-532.
- WAQUIL J.M., TEETES G.L. & PETERSON G.C.** (1986) Comparison of immature sorghum midge (Diptera: Cecidomyiidae) development on resistant and susceptible sorghums. J. Econ. Ent., 79:833-837.
- WIDSTROM N.W., WISEMAN B.R. & MAC MILLIAN W.W.** (1968) Some gene effects conditioning resistance to midge and webworm injury in sorghum. Sorghum Newsl., 15:22.
- WISEMAN B.R. & MAC MILLIAN W.W.** (1968) Resistance in sorghum to the sorghum midge, *Contarinia sorghicola* (Coquillett) (Diptera: Cecidomyiidae). J. Georgia Ent. Soc., 4:15-22.
- WISEMAN B.R. & MAC MILLIAN W.W.** (1970) Preference of sorghum midge among selected sorghum lines, with notes on overwintering midges and parasitic emergence. USDA Prod. Res. Rpt., 122.
- WISEMAN B.R. & MAC MILLIAN W.W.** (1970) Parasites of the sorghum midge. Sorghum Newsl., 13:21.
- WISEMAN B.R. & MAC MILLIAN W.W.** (1971) Another parasite of the sorghum midge. Sorghum Newsl., 14:14-15.
- WISEMAN B.R., MAC MILLIAN W.W. & WIDSTROM N.W.** (1973) Registration of SGIRL-MR-1 sorghum germoplasm. Crop. Sci., 13:398.
- WISEMAN B.R., MAC MILLIAN W.W. & WIDSTROM N.W.** (1974) Techniques, accomplishments, and future potential of breeding for resistance in corn to the corn earworm, fall armyworm and maize weevil and in sorghum to the sorghum midge. En MAXWELL F.G. & HARRIS F.A. Proc. Summer Inst. Biol. Control Plant Ins. Dis. Univ. Press of Mississippi, Jackson, pp.381-393.
- WISEMAN B.R., GROSS H.R. & MAC MILLIAN W.W.** (1978) Seasonal distribution of the sorghum midge and its hymenopterous parasites, 1975-1977. Env. Ent., 7:820-822.
- WOODRUFF L.C.** (1929) *Eupelmus popa* GIRAUT, a parasite of sorghum midge, *Contarinia sorghicola* (Coq.). J. Econ. Ent., 22:160-167.
- WUENSCHE A.L.** (1980) An assessment of plant resistance to the sorghum midge, *Contarinia sorghicola*, in selected lines of Sorghum bicolor. PhD Diss., Texas A&M Univ., College Station.
- YOUNG W.R. & TEETES G.L.** (1977) Sorghum entomology. Ann. Rev. Ent., 22:193-218.

