

**UNIVERSIDAD AUTONOMA AGRARIA ANTONIO NARRO
DIVISIÓN DE AGRONOMÍA, DEPARTAMENTO DE BOTÁNICA**

**PROGRAMA ANALÍTICO DEL CURSO
ECOFISIOLOGÍA VEGETAL**

FECHA DE ELABORACIÓN: (Agosto de 1999)

I.- DATOS DE IDENTIFICACIÓN.

NÚMERO DE CRÉDITOS:

CLAVE: BOT-447

NÚMERO DE HORAS TEORÍA / PRÁCTICA / SEMANA: 3 / 2

DURACIÓN: 15 SEMANAS

TOTAL DE HORAS TEORÍA: 45

TOTAL DE HORAS PRÁCTICA: 30

TITULAR:

Dr. José Manuel Fernández Brondo

II.- OBJETIVOS GENERALES.

1. Analizar y describir los procesos fisiológicos de las plantas, sus bases bioquímicas y su impacto ecológico.
2. Analizar y describir los efectos ambientales sobre los procesos fisiológicos de las plantas, así como las adaptaciones de éstas a las condiciones de estrés.

III.- TEMARIO

1. INTRODUCCIÓN.

- 1.1. Concepto de Ecofisiología y la importancia de ésta en el manejo del cultivo.
- 1.2. Metodología para la investigación ecofisiológica.

2. CRECIMIENTO.

- 2.1. Concepto ecofisiológico de crecimiento.
- 2.2. Análisis matemático y funcional del crecimiento.
- 2.3. Crecimiento y productividad.

3. DESARROLLO.

- 3.1. Sistema regulatorio de la planta.
- 3.2. Ecofisiología de la germinación y del crecimiento de la plántula.
 - a. Cambios metabólicos y morfológicos durante la germinación y el establecimiento de la plántula.
 - b. Germinación y estrategia reproductiva.
 - c. Efectos ambientales sobre la germinación y el establecimiento.

- 3.3. Ecofisiología del desarrollo ulterior.
 - a. Morfogénesis, floración, fructificación y senescencia.
- 3.4. Efectos ambientales sobre el desarrollo.
- 4. BALANCE DE CARBONO.
 - 4.1. Ganancia de Carbono.
 - a. Consecuencias ecológicas de las diferentes vías de asimilación de Carbono.
 - b. Eficiencia fotosintética.
- 5. RELACIONES HÍDRICAS.
 - 5.1. Transporte de agua a través del sistema suelo-planta- atmósfera.
 - 5.2. Regulación del transporte de agua en la planta; conducta estomatal.
 - 5.3. Índices de eficiencia en el uso de agua.
 - 5.4. Respuestas fisiológicas y adaptaciones al estrés hídrico.
- 6. RELACIONES ENERGÉTICAS.
 - 6.1. Conceptos básicos sobre la transferencia de energía.
 - 6.2. Balance de energía en hoja, planta y vegetación.
 - 6.3. Respuestas fisiológicas y adaptaciones al estrés energético (luz y temperatura).
- 7. NUTRICIÓN.
 - 7.1. Efectos ambientales sobre el crecimiento y la fisiología del sistema radical.
 - 7.2. Absorción y transporte de nutrientes.
 - 7.3. Forma disponible y papel fisiológico de macro y microelementos.
 - 7.4. Respuestas fisiológicas y adaptaciones al estrés nutricional
 - 7.5. Nutrición y productividad.

Programa de Prácticas (en proceso de elaboración).

IV. PROCEDIMIENTOS DE ENSEÑANZA-APRENDIZAJE.

La enseñanza de este curso se realizará de la siguiente manera:

1. La parte teórica del curso se basará en exposición oral, con participación de los alumnos en el análisis y discusión de cada tema.
2. La parte práctica consistirá en la realización de experimentos de laboratorio, de campo y de invernadero, así como en el análisis e interpretación de resultados de investigación forestal.

V. EVALUACIÓN.

La parte teórica se evaluará con exámenes parciales, y la parte práctica con el reporte de cada actividad realizada.

La calificación final tendrá los siguientes componentes:

60% de Teoría (Calificación promedio de los exámenes parciales).
40% de Práctica (Calificación promedio de los reportes de las actividades realizadas).
100% Total.

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