To successfully deploy your **.NET 8 backend (AgroSmartBeackend)** on **Render** using the **PostgreSQL database** provided by Render, follow this **step-by-step guide from the start**:

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1. Prepare Your Local Project

Prerequisites:

- .NET SDK 8 installed locally
- A GitHub repository (your code is hosted at mr-baraiya/AgroSmart)
- PostgreSQL NuGet package:

```
dotnet add package Npgsql.EntityFrameworkCore.PostgreSQL
```

---

2. Update Connection Configuration

`appsettings.json`

Update your connection string like this:

```
"ConnectionStrings": {
  "myConnectionString": "Host=dpg-d1n7n1je5dus73c8pgeg-a;Port=5432;Databa
}
```

> *Tip:* Move this to environment variables in production for security.

---

3. Update `Program.cs` or `Startup.cs`

Replace SQL Server with PostgreSQL EF Core setup:

```
builder.Services.AddDbContext<AgroSmartContext>(options =>
    options.UseNpgsql(config.GetConnectionString("myConnectionString"))
);
```

Make sure to also add:

```
AppContext.SetSwitch("Npgsql.EnableLegacyTimestampBehavior", true);
```

---

4. Configure Dockerfile

Update your `Dockerfile` for .NET 8:

```
# Build stage
FROM mcr.microsoft.com/dotnet/sdk:8.0 AS build
WORKDIR /app
COPY *.csproj .
RUN dotnet restore

COPY . .
RUN dotnet publish -c Release -o out

# Runtime stage
FROM mcr.microsoft.com/dotnet/aspnet:8.0
WORKDIR /app
COPY --from=build /app/out .
ENTRYPOINT ["dotnet", "AgroSmartBeackend.dll"]
```

---

5. Push to GitHub

Push your working code with updated config and Dockerfile.

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6. Setup Render Backend Service

1. Go to [Render.com]
2. Click **"New Web Service"**
3. Connect to your GitHub and select the repo
4. Fill the following fields:

Field	Value
Root Directory	`AgroSmartBeackend`
Dockerfile Path	`AgroSmartBeackend/Dockerfile`

Field	Value
Build Context Directory	`AgroSmartBeackend`
Environment	`Docker`
Environment Variables	Add below

Environment Variables

Key	Value
`ConnectionStrings__myConnectionString`	`Host=...;Port=...;Database=...` *(from Render Postgres panel)*

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7. Provision PostgreSQL on Render

1. On Render, go to **"Databases" → "New PostgreSQL"**
2. After it's created, copy the connection values:
    - Host
    - Port
    - DB Name
    - Username
    - Password

Paste these into your `.json` config or use Render **Environment Variables**.

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8. Auto-Migrations (Optional)

If you want automatic DB migration, update `Program.cs` :

```
using (var scope = app.Services.CreateScope())
{
    var dbContext = scope.ServiceProvider.GetRequiredService<AgroSmartCor
    dbContext.Database.Migrate();
}
```

---

9. Deploy

Once you deploy on Render:

- It will build using Dockerfile
- Migrate your PostgreSQL database (if configured)
- API will be available at:
  `https://agrosmart-api-service.onrender.com`

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10. Verify API (Swagger)

Open:

```
https://agrosmart-api-service.onrender.com/swagger
```

Try testing endpoints like:

- `/api/User/Login`
- `/api/Crop/All`

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11. Fix HTTPS Redirection Warning (Optional)

In `Program.cs`, disable HTTPS redirect in production (Render already handles HTTPS):

```
if (!app.Environment.IsDevelopment())
{
    // app.UseHttpsRedirection(); ← comment this out
}
```

Let me know if you'd like me to generate:

- `Program.cs` or `Dockerfile` for copy-paste
- EF Core migration commands for PostgreSQL
- A version that uses environment variables only (safer)

You're now running a production-ready .NET 8 Web API on Render with PostgreSQL!